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AN

APPENDIX

TO THE

TREATISE

OF THE

Horney-Coat of the Eye, &c.

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AN

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TREATISE

OF THE

Horney-coat of the Eye,
and the Cataract.

WITH AN

ANSWER

To Mr. *Cheſelden*'s Appendix, relating to his New Operation
upon the Iris of the Eye.

By BENEDICT DUDDELL, Surgeon.

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MVSEVM
BRITAN
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PREFACE.

THE Treatiſe of the Mechaniſm of the Eye, *which was wrote by Mr.* Taylor, *Surgeon in* Norwich, *and dedicated to Mr.* Cheſelden, *publiſh'd in the Year* 1727, *was the Reaſon of my publiſhing my* Treatiſe of the Diſeaſes of the Horny-coat of the Eye, and the Cataract; *becauſe I apprehended there were ſome Tranſactions in it, which might prove detrimental inſtead of advantageous to the Publick; which was his pareing of the Cornea for a cartilaginous Excreſcence on that Coat, againſt which, I gave my Reaſons in my aforeſaid Treatiſe* *.

In the Preface of my Treatiſe of the Horny-coat and Cataract of the Eyes, *I declared, that my Intent was to inſtruct young Surgeons in ſeveral Diſorders of that Organ; by which Means a great many* *poor afflicted Perſons might be reliev'd of ſeveral Diſorders of their Eyes, which I purely did for the publick Good* †.

There lately fell into my Hands, a little Treatiſe, intitled, An Appendix to the 4th Edition of the Anatomy of the Human Body. *Printed ſeparately for the Uſe of thoſe who have the former Editions.*

By W. Cheſelden, *Surgeon to Her Majeſty,* F.R.S. *and Surgeon to St.* Thomas's Hoſpital. *Printed in the Year* 1730. *In which there being a Deſcription relating to a new Operation, which this Gentleman invented ſome Years ago,* viz. *an opening in the Iris, for the Diſeaſe which is call'd a Synereſis of the Pupil, that is, a Contraction of the Pupil; I find ſome Paſſages which that Gentleman will excuſe me taking Notice of.*

As all public Writings lie open to be Cenſur'd, I beg Leave to deliver my Opinion upon Mr. Cheſelden's *new Operation of the Aperture of the Iris, which I will fairly do, by firſt mentioning what he ſays, and then make my Objections, with my Reaſons for them.*

Some Treatiſes are wrote for public Good, and others for private Intereſt. I don't
believe

believe the latter is the Gentleman's View, neither do I intent to attack him as I wou'd do thoſe who ſeem to write on ſuch a Motive. All new Operations are not perfect at firſt, for Proof of which, I appeal to his own Words, in ſpeaking of different Ways of cutting for the Stone; where the reviving of the upper Way was practiſed with Succeſs by Mr. John Douglaſs, *and afterward by himſelf taken up; and no Body endeavour'd to advance the Credit of that new Method more than Mr.* Cheſelden: *But the ill Succeſs of the Operation upon ſome Perſons, and the terrible Accidents which happen'd to others who had been cut, put him in a Method of contriving a new Manner of Cutting, as he ſays himſelf; wherein ſome Operatiens are left off, and others amended.*

There have been Faults found by ſome Perſons with my Method of Scarifying the Eye with the Beards of Barley, which I publiſh'd in my Treatiſe of the Diſeaſes of the Horny-coat of the Eye and the Cataraet; *becauſe they are ſubject to break between the Globe of the Eye and its Lids, and ſo cauſe perhaps a greater Diſorder than the Diſeaſe for which its made uſe of. I have found out a new Scarificatory, which is not ſo apt to break; and one may ſcarify ſeveral Eyes with the ſame Inſtrument, provided we take Care of waſhing* *the Blood from them before it comes to dry on the Bruſh; for then it clogs the ſmall Teeth of the Inſtrument. I ſcarify'd a Perſon's Eyes with the ſame new Inſtrument, in the Preſence of Mr.* Dickens, *Serjeant Surgeon, and Mr.* Shipton, *who both ſaw the aforeſaid Perſon's Eyes ſcarify'd, and they obſerv'd there was not the leaſt Bit broke from the Inſtrument. This Inſtrument is made with the Beards of Wheat, which are a great deal tougher than thoſe of Barley; and they are made up in the ſame Manner as thoſe of the Barley, which is deſcribed in my aforeſaid Treatiſe.*

CHAP.

AN

APPENDIX

TO THE

TREATISE

OF THE

Horny Coat of the Eye and the Cataract.

CHAP. I.

SECT. I.

Of an Appendix of the Lachrymal Bag.

IN the Beginning of the *Autumn* of 1730, I was conſulted by a young Man of about nineteen Years of Age, who had a white *Tumour* on the Angle of his right Eye: This *Tumour* appeared to be about the Bigneſs of a large Horſe-bean, and it entirely filled that Space and extended to the Top of the Noſe. I examined the Part and by the Touch it ſeem'd to have a liquid Subſtance in it. Upon my aſking him ſome Queſtions, he told me that he had had it for ſeveral Years without much Pain: That it had been more an Eye-ſore than any Thing elſe; that ſome Months before I ſaw him, he had in fighting received a Blow on the Swelling, and that after the Blow it became flat, that all the Matter therein contain'd came through his Noſe; which was a certain Sign that this *Tumour* had a Communication with the *lachrymal Bag*. Thoſe Circumſtances gave me Reaſon to conjecture that it was an *Appendix* to the ſaid *Bag*: But ſoon after the Blow it filled again. He had ſome Years before conſulted the Surgeons of St. *Bartholomew's Hoſpital* upon it, being then a Patient therein for the Cure of ſome other Diſeaſe: But thoſe Gentlemen wou'd not undertake it, and he addreſſed himſelf ſeveral Times afterwards to them, but they told him that he was incurable. Nevertheleſs I conſider'd all the aforeſaid Circumſtances, and propoſed an Operation, which I perform'd in the following Manner.

I began by making a ſemicircular Inciſion with a Lancet about three Lines in length, and one Line from the Corner of the two Lids; I juſt made it through the

Membranes without penetrating the Bag, then I took a ſmall crooked Needle with a Thread in its Eye, double and a Knot at the End, I paſs'd the Point of the Needle into the Bag, then turned the Point upwards and took about two Lines of the Bag, ſo drew the Needle out, and then drew the Thread to me by its End, I then cut the Part of the Bag which was contain'd between the Thread: Whereupon there iſſued out of the Bag about a ſmall Tea ſpoonful of a glairy yellowiſh Matter; its Conſiſtence was like the White of an Egg. After the Operation was over, I put a Tent into the Orifice in order to keep it open: But on the third Day the Orifice of the Bag was heal'd, and the *Tumour* appear'd as big as ever: Finding that this Method did not ſucceed, I tried another, which was this.

I took a pretty large crooked Needle with five Silks of a middle Size in it, and doubled them and tied a Knot at the End, then I paſſed the Needle into the Bag at the Place where the firſt Inciſion was made, and directed it through the Middle of the *Appendix*, then out by the Top of the Noſe: As ſoon as the Needle had paſſed through the Bag, there came nigh two large Tea ſpoonfuls of the ſame Sort of Matter as in the firſt Inciſion: This Operation being done, I cut the Silk cloſe to the Eye of the Needle, and made a Knot at it; ſo that I made a Sort of a Seton. The next Day the Seton was rubb'd with a digeſting Ointment.

My Intent hereby was to make the inner Surface of this *Appendix* raw, for it wou'd be impoſſible for them to reunite without it. In the firſt Place, I evacuated all the Matter which was contain'd in the aforeſaid Bag; and the Subſtance that uſed to fill this Bag, kept running out of the lower Orifice, ſo that the Sides of the Bag where the Silk do not touch rub one againſt the other and make the Parts raw; and Nature throwing out her little fibrous Hooks which interlace one into the other, joins the Parts together. In the ſecond Place, I leave the Seton in 'till I thought that all the inner Parts are ſufficiently digeſted beyond the Silk, after which drawing the Seton out, the Parts will joyn where the Silk has paſſed; and by the Help of a compreſſive Bondage the Orifices will ſoon cicatrice. But I was diſappointed of pulling of it out by the following Impoſition.

As I lived at *Hammerſmith*, the Patient was left under the Care of a Surgeon who lived by him near *Bride-lane*, to dreſs the Parts. Four Days after the laſt Operation I went to ſee him, and the Surgeon told me there had been an Inflamation on the Eye, and all the adjacent Parts of the *Tumour*, for which he had been Blooded and the Parts fomented with warm Water, by that Means the Inflamation was got off, and every Thing ſeemed to favour our Deſign. Three Days after this I went to ſee him, and his Maſter told me that he was gone to St. *Bartholomew's Hoſpital.* I was very much ſurprized at it, and not ſeeing him till he came out of the ſaid *Hoſpital* which was about a Month after my laſt Operation; I aſk'd him for what Reaſon he left me, he loaded me with Reproaches, and told me that the Surgeons of the *Hoſpital* ſaid, that what I had done wou'd corrupt the Bones of the Noſe, and that his Diſeaſe was quite contrary to what I took it for. I ſcarce know one of thoſe Gentlemen that are Judges of the Caſe. If any of them had given us any Teſtimony of their Knowledge in theſe Diſeaſes, either by Writing, or by their Cures; we might have agreed to their Judgments: But 'tis manifeſt they did not know his Caſe, when as he told me he had ſollicited them for four Years to cure him to no Purpoſe. Now as they found Fault with an Operation which they never ſaw, nor heard of before: It may be preſum'd they liked it not, becauſe it was not of their own Invention, and were diſpos'd at the ſame Time to deprive me of my juſt Due.

I have already given my Reaſon, why I took this Method in operating, if I had extirpated this *Appendix* like a *Cyſtis*, then there would have been Danger of hurting the Bones, whereas, on the contrary, my new Operation preſerves them.

And by the way, I ſhall aſk theſe Gentlemen, why their Apparels are not better made, and their Bandages more regularly apply'd? I leave them to conſult upon an Anſwer.

In another Caſe, if one was to aſk them how came it that one of their greateſt Lithotomiſt's, did not know how to introduce a *Catheter* into the *Blader* in a regular Method, who ſometimes has been an Hour a fumbling with his Fingers in the Rectum before he could get the Inſtrument in, at other times has bent the Catheter without being able to paſs it? Is it not for want of knowing the Structure of the *Urethræ*, and the Situation the Patient is in when the Operation is perform'd? And then to know how to direct the Catheter? As they have a great many dead Bodies in their *Hoſpital*, to underſtand this Buſineſs, they need only exerciſe their Inſtruments, and examin what Part of the *Urethræ* it ſtops moſt in, by making proper Inciſions. This wou'd give them a real Light into the Nature and Situation of that Pipe. When having made thoſe Inquiries, they find Fault with others, let them give demonſtrative Reaſons for it, and not fill the Ears of the Vulgar with ignorant and idle Tales.

The Inexperience of thoſe Gentlemen, puts me in mind of an Anatomiſt, who had bought one of my Treatiſes of the Diſeaſes of the *Horny-Coat of the Eye and the Cataract*, who by chance met me one Day, and told me, that I had allow'd ſeven Bones to the *Orbit of the Eye*, whereas it was composed but of ſix. One would think it ſurprizing, that a Perſon who had been Profeſſor of Anatomy for ſeveral Years cou'd find but ſix Bones: But I was not ſo much aſtoniſh'd, when I had recollected what Mr. *Winſlow* had ſaid upon that Matter, in a Memoir of his publiſh'd in the Tranſactions of the *Royal Academy of Sciences* in *France* for the Year 1721, where he ſays *pag.* 405.

" The Orbit or the Ptony-box which " contains the Globe of the Eye is com- " monly compoſed of ſeven Pieces, as *Vidus* " *Vidius*, Phyſicians to *Francis the Firſt*, " and Profeſſor of Surgery to the *Royal* " *College*, has ſhew'd very cleary in his " Anatomy of Human Bodies, although thoſe " who have wrote ſince him have only put " down ſix.

SECT. II.

Of the Adheſion of the Eye-lids to their Globe.

THESE Adheſions moſt commonly ariſe from an Excoriation of the Globe of the Eye and of its Lids, either by Lime falling in between them or any other Body's, which are capable of diveſting thoſe Parts of their exterior Coats, and cauſes a Solution of their Continuities. When theſe Parts are raw they naturally joyn, by their little fibrous Hooks interlacing one into the other: And they become ſuch ſtrong Ligaments, that it wou'd even ſurprize any one in performing the Operation.

Some Authors are of Opinion eſpecially, Mr. *Baniſter*, in his *Treatiſe of the Diſeaſes of the Eye*, imprinted at *London*, in the Year 1622, that theſe Coheſions may happen from the Birth, and even from the natural Conformation of the Parts; and report that the Eye-lids may joyn to the Conjunctiva, and ſometimes to the Cornea, and that the Eye-lids will joyn together, as it is ſometimes ſeen in the Hole of the Ear, Penis, Matrix, Fundament, Mouth, *&c.*

The Hiſtory of the Tranſactions of the *Royal Academy of Sciences*, gives an Account of a Perſon who was born Deaf, and by conſequence Dumb, at the Town of *Chartres*, who at the Age of twenty-four Years was heard to ſpeak to the great Surprize of all that knew him: And that about five Months before he ſpoke, there was ſomething which broke in his Ears, and from which iſſu'd a ſmall Quantity of Water, and immediately after that, the firſt Thing which he heard was the Ringing of the Bells: Then he heard the People talk, but cou'd not ſpeak himſelf. He then began to repeat Things to himſelf for the Space of four or five Months, at which Time he began to ſpeak a little, and at laſt came to his Speech very well! For my Part I never ſaw the Junction of the Eye-lids to their Globe from the Birth, but I have ſeen the Fundament cloſed, and the inner Orifice of the Matrix which appear'd to be cloſed, I ſhall here report the Hiſtory of the Coheſion of the latter; becauſe it may be inſtructive to young Surgeons before I deſcribe the Operation of diſ-uniting the Globe of the Eye from the Lids.

November the twenty ninth 1726, I was ſent for to a Perſon, who lived between *Hammerſmith* and *Chelſea*, who complain'd to me that ſhe had a flooding, and thought herſelf to be two Months gone with Child. She was afraid of miſcarrying, as ſhe had done ſeveral Times before. I aſk'd whether in her former Miſcarriages there was any Thing of a Conſiſtence diſcharg'd, ſhe anſwer'd they never could find any; then I aſſured her there never cou'd be a Child, for the Subſtance of a Child never could melt away, and appear like coagulated Blood. I blooded her, and order'd her to keep her Bed, and to obſerve a cooling Regimen.

The next Day I went to ſee her, the Flooding continu'd: She complain'd of Springing in her Breaſts, and Pain in the lower Belly. I examin'd about the Colour of the Evacuation, and aſk'd whether it was fluid and florid, or coagulated, they told me that it came away in Clots which were ſomething diſcolour'd. I told them that I muſt examin the Parts for by all thoſe Signs, if ſhe was with Child there was Danger of Miſcarrying from the Orifice of the Womb, being open by the Blood which iſſued from the Orifices of the Veſſels of the Womb, by the Detaching of the Placenta, either in Part or the Whole from the inner Surface of the Uterus. But when I came to touch the Parts, there was a great Quantity of coagulated Blood in the *Vagina*, and no Mouth to the Womb; but there was a large Protuberace about the Bigneſs of a middling Hen's Egg. I examin'd the lower End of the Protuberance, where the Orifice ought to be with a proper Catheter, for fear there might have been a ſlimy Matter ſticking to the Orifice, which might have made the Parts even, which wou'd not have been ſo perceptable to the Finger as to the Catheter, and becauſe the later could enter into a ſmaller Hole than the Finger: Notwithſtanding all theſe Eſſays, I cou'd find no Opening. The ſwell'd Part which was the Protuberance already mention'd, gradually diminiſh'd for the Space of thirteen Days, till the Tumour was quite gone. Then I examin'd again the Place where the Orifice ought to be, in the ſame Manner as I had formerly done, without being able to find any. From thence I concluded ſhe never had, nor never cou'd conceive; for to imagine a Conception might be perform'd without a free Paſſage into the Womb, was quite contradictory to Reaſon. The Patient was little ſatisfied with my Reaſons, ſhe had been married twenty-two Years, and the deſire ſhe had of having a Child, made her conſult ſometimes a Phyſician, at another Time a Midwife, who made her believe ſhe had miſcarry'd ſeveral Times. At laſt ſhe had the Advice of a Man-midwife, who lives ſome little Diſtance from *London*; ſhe was under his Care for ſome Time; upon her ſwelling again this famous Accoucheur inſinuated to her that ſhe was actually with Child, and that ſhe had only to wait till the nine Months were expired, for a favourable Iſſue of her Pregnancy: But it all diſappear'd in a few Months as before. Sure this Gentleman did not well obſerve the Precepts of *Hippocrates* where he ſays, *If you have no other Signs to know a Woman is with Child, her Eyes will ſhew you:* For their Eyes are more drawn into the Orbit, and the Conjunctivas are ſomething livid, the Lids are flabby, the Arteries and Veins of the Neck are fuller than ordinary. *Gillemaeau* in his Treatiſe of *Accouchements* (pag 5) ſeems to confirm *Hippocrates*'s Opinion; and further adds, that their Pupils are more contracted at the ſecond Month of their Pregnancy.

I found the Report of a Caſe not unlike to the aforeſaid Gentlewoman's Diſorder, or Diſeaſe in the Tranſactions of the *Royal Academy of Sciences* of *France*, for the Year 1704, which is as follows.

A Woman of fifty Years of Age, and who during nineteen Years Marriage had no Child, was kill'd by the Shot of a Gun. She evacuated but a ſmall Quantity of Blood at the Time of her Monthly Purgations, and was at that Time very much ſwell'd, and ſuffer'd great Pain in her lower Belly, and a few Years after ſhe began to have her Monthly Purgations, ſhe uſed to ſpit Blood or blow it out of her Noſe at thoſe Times. Mr. *Littre* having open'd her, ſaw the Cauſe of all thoſe Accidents, and of her Sterility. The inner Orifice of her

Womb was cloſed by the Membrane, which inwardly lives the Vagina, and this Membrane was only adherent to the Surface of the Vagina. It was only pierced with two little Holes of a Quarter of a Line in Diameter.

In all likelihood the fore-mention'd Perſons Caſe might be the ſame as this later, there muſt have been ſome Holes for the Blood to fall from the Cavity of the Womb into the Vagina. But it was impoſſible for me to find ſuch a ſmall Hole or Holes, at leaſt during Life.

I hope that I may be excuſed for going ſomething from my Subject: Becauſe as this is a Caſe ſo uncommon, and even unknown to a great many Accoucheurs, if the like Diſeaſe ſhou'd fall into the Hands of a young Surgeon, he may know there are ſuch Caſes; by which Means he will be able to vindicate his Character, if he is calumniz'd by ſome diſingenious Practitioners, who wont give themſelves time to think, nor to examin modern Authors who have made ſuch great and uſeful Progreſs in Anatomy compar'd, beyond what we have receiv'd from the Ancients. But to return to the Eye.

A Boy of about twelve Years of Age came to me the Beginning of *July* in the Year 1730, who had had ſome Lime throw'd into his right Eye ſix Years before, and it ſo excoriated the anterior Part of the Globe of the Eye and its *Lids* toward the Noſe, that thoſe Parts became raw; as it is natural for all raw Fleſh to joyn when they touch together: It was followed by Cicatrices, which cauſed very ſtrong Coheſions of the Parts. The Lids almoſt touch'd at the lachrymal Points: And there was a very thick Membrane which ſeem'd to take its Riſe at the Union of the Lids to the Globe, and that intirely covered the Cornea, and which tied the Eye to the Lids, that it cou'd hardly move in the Orbit; one cou'd but with Difficulty perceive the Eye, becauſe it was bridled down to the Lids: And he cou'd hardly ſee the Shades of large Objects. I began the dividing of the Parts in this Manner.

I took a middle ſized crooked Needle with a Point and a Silk in it, I doubled the Silk and made a Knot at the End: I took as much of the Adherency as the Structure of the Parts wou'd well allow of at a Time; after I had paſſed the Needle, the Silk was cut from it, and a Knot tied at it, that the Ligature might be even; then I approach'd the two Knots together to keep the Parts firm, and with a Lancet I cut all which was ingaged in the Silks, and ſo continued till I had ſeparated the Lids from the Eye. The Membranes which formed the Adheſion was ſo tough that the ſmall Quantity which I had ingaged in the Silk at a Time, wou'd have been able to lift the Boy up, if the Silk had been ſtrong enough to ſupport the Weight.

I did not offer to divide the Membrane which cover'd the Horny-coat with a Lancet, for fear of wounding that Coat: But I propoſed to wear it down by Scarifying, when the Parts in ſome Meaſure were cicatrized which I had divided, for which I ſhall give my Reaſons in the following Sheets. After the Operation, I order'd him to come upon the third Day, when I found that I had not ſufficiently diſingaged the Membranes. I ſeparated ſomething further, and the Globe of the Eye ſeem'd to move pretty freely in the Orbit, and at the Week's End he could ſee to diſtinguiſh middling Objects, becauſe the Membrane which cover'd the Horny-coat was grown thinner. The Boy was afraid of coming to me again, becauſe he dreaded the Cutting; ſo that I cannot tell whether the Parts any-wiſe reunited again. But I can give a more particular Account of another Perſon, on whom I had perform'd ſuch another Operation.

A Man about thirty Years of Age, had the Under-lid of his left Eye adherent to the Globe. The Lids were joyned one to the other by a ſmall membraneous Bridle near to the great Angle. From the Adheſion of the Under-lid to the Eye, there was a fleſhy Membrane which ſeem'd to take its Riſe at the uniting of thoſe two Parts, and paſſed over one Third in Breadth of the exterior Part of the Conjunctiva, and one Third of the Cornea almoſt Level with the inferior Part of the Pupil when moderately dilated; and it tied the Globe of the Eye ſo cloſe down to the Lid and even its Edge, that the Eye cou'd not move upwards, nor cou'd he ſee Objects at a ſmall Diſtance level with the Eye-brow. This Man had ſome Mortar fell into his Eye four Years before, which was the original Cauſe of this Diſorder. He perceived that this foreſaid Membrane cover'd more and more of the Cornea. This Membrane which crept up the Cornea was like to, or the ſame Diſeaſe call'd *Pterygium* or *Ungula:* As to its Colour it has a great Deal of Reſemblance to a human Nail, and it appear'd to be cover'd by the fine Pellicle which forms the exterior Surface of the Cornea, ſo that it creeps up the Conjunctiva and Cornea like Ivy againſt a Tree, the later ſpreading up the Bark of the Tree, and the former running along the Conjunctiva and Cornea, betwen thoſe Parts and the upper Skin, ſo that thoſe two Parts ſerve it for a Sheath, which I believe facilitates its puſhing forward, *viz.* by the Movement of the Eye, ſtretching of the exterior Covering, it is forced to divide from its other Parts, and ſo gives way for the Ungula to puſh forwards, and ſometimes it even covers all the Cornea as is often ſeen.

Theſe Ungulas are compoſed moſt of ſtraight fleſhy Fibres, and run in parallel Lines from their Origin to their ſeeming Inſertion. I cannot better deſcribe the Structure of a Fibre than Doctor *William Wood*, Fellow of the Royal College of Phyſicians, has done in three learned Lectures of his read on the *Mechanical Eſſay upon the Heart, in the Amphitheater of the ſaid Royal College of Phyſicians*, London; on the 23d, 24th, and 25th Days of *October* 1727; and which were afterwards printed in the Year 1729; where he ſays page 18, "A Fibre is a Cylindrical Tube made up of a fine and "denſe Elaſtick Membrane: Which Membrane is again compoſed of finer Fibres, "and ſo on beyond our Capacity to analyze and diſtinguiſh even with all imaginable Artifice.

The Structure of the Ungula gave me Reaſon to believe that by cutting them tranſverſly, or by taking a Piece out at their inferior Parts would hinder them from growing, which I ſhall have Occaſion to explain hereafter, when I come to ſpeak of the Operation.

Moſt Authors order for the Cuee of the fleſhy Ungulas, their Extirpation, either by dividing them with a cutting Inſtrument, or

with

with a crooked Needle with a Silk or Horſe Hair in it, ſo to paſs the Needle underneath the Membrane towards its Middle, and to ingage all of it in the Needle: The Needle being paſſed through, they cut the Silk or Horſe Hair cloſe to the Needle, then take an End in each Hand, which ought to be ſingle, then ſlide it under the Ungula with a ſaw-like Action towards its Origin, then draw it to the other Extremity next to the Cornea, or over it according to its Extent, then tie the Ungula in the Middle with the Silk, and taking the Ends of the Silk in one Hand, firſt cut one End of the Ungula then the other Extremity. That is the beſt Method which I can find in Authors for the manual Operation, who have all deſcendently copy'd one from the other; but for the Ungulas that are recent, I ſhall ſpeak in the following Sheets of their Cure.

I will now deſcribe the Manner of Operation upon the foreſaid Man's Eye. This Man had conſulted ſome Surgeons, who were for paring the Ungula off from the Cornea: At laſt he was recommended by a Gentleman to Mr. *William Sadler* Surgeon as an Object of Compaſſion having a numerous Family, and he was threaten'd to be depriv'd of ſupporting them by the Loſs of his Eyes; as the Ungula augmented, it cauſed great Pain on the other Eye, and ſometimes he was hardly able to diſcern middling Objects with it. Mr. *Sadler* ſent for me to conſult upon this Caſe; and I found all the Diſorders already mentioned; we judged it neceſſary, firſt to detach the Lids one from the other, and then to divide the under Lid from the Globe. We began with the Bridle that tied the two Lids by paſſing a Hook under it, then with a crooked Knife cut it. Then we detach'd the Under-lid by taking as much of the Membrane as the Hook cou'd well ingage at a Time, then with the crooked Knife the back Part turned to the Globe, cut what was contain'd in the Hook, ſo repeated till the Parts were ſufficiently diſingaged one from the other. He waſh'd the Parts with warm Water, and apply'd the Pulp of a roaſted Apple at Night. The lower Part of the Ungula which then covered the Conjunctiva next to the Cornea, was ſcarify'd every third Day in order to cauſe a Digeſtion, by which Means that Part of the Ungula which cover'd a Part of the Cornea became conſiderable thinner, by the Matter diſcharging from the ſcarify'd Parts that were below it. In about three Weeks the Under-lid joyned again to the Globe of the Eye, but not nigh ſo much as at firſt, *viz.* the Conjunction was not ſo broad, and the Edge of the Lid was not joyn'd to the Globe as before the Operation: And this new Attachment was whiter, and ſomething reſembled a callous Subſtance. But the two Lids did not adhere together. We divided the forementioned re-united Parts a ſecond Time, then Mr. *Sadler* put *Lapis Calaminaris* in Powder between the Parts in order to hinder them from joyning, and the Patient had Orders to pull the Lid gently down ſeveral Times a Day, by which Means we thought to accompliſh our Deſign, becauſe the inner Parts of the Lid ſeem'd to Citatrize a Quarter of an Inch down; and the Patient cou'd ſee a great deal better. Notwithſtanding all thoſe favourable Appearances the Globe joyned to the Lid two third Parts in about ſeventeen Days Time, by a Ligament which had near the fifth Part of an Inch in length, but very Narrow toward its upper Part; and that gave the Eye a greater room to move than it had after the firſt Operation.

Mr. *Baniſter* deſcribes the Operation of diſ-uniting the Lid from the Eye in his aforeſaid Treatiſe, but he does not ſay that he ever perform'd it himſelf: And he alleges at the later End of the ſame Epiſtle, " That *Celſus* ſaid he never ſaw any cured: " And to his Opinion agreeth *Meſue*, albeit, " he had eſſay'd many Things, becauſe the " Eye-lid is inſeparable from the Eye.

We cannot agree to *Celſus* and *Meſue*'s Opinion becauſe we have found it otherwiſe, in what I have been reporting in torn Operation, but we muſt allow that he Parts reunite in ſome Meaſure by a Sort of Membrane, but that it gives way for the Eye to move as I have already ſaid. It may be ſuppoſed that thoſe Gentlemen had ſeparated the Parts once, and that they finding the Parts reunited again, wou'd not attempt a ſecond Eſſay. For want of further Trials there are a great many Things hid, which might be of Service to the Publick when known.

But, Mr. *St. Yves*, a modern Author has deſcribed the Diſuniting of the Lids from the Eye when joyned, in his Treatiſe of the Diſeaſes of the Eye, printed at *Paris* in the Year 1722, where he ſays pag. 133, If there is an Union of the Lids to the Globe of the Eye, it muſt be ſeparated with a fine Knife which has a ſmall Button at its Extremity, by that Means the Point will not hurt the Eye nor the Lid whilſt the Diviſion is making, which is done by taking hold of the Lid with a Fore-finger and Thumb and gently lifting it up. Then you introduce the Knife between the Globe and the Lid, by the Side of the Adheſion which you cut, in avoiding to inciſe more of the Globe than of the Lid. When the Adherency is ſeparated, we put between the Globe and the Lid a Plate of Lead in the Form of a Poſtick or falſe Eye without a

Tongue, and one muſt take care to waſh the Eye three or four Times a Day with a cooling Collyrium, but the Plate of Lead muſt be took out before you waſh, and to apply it as ſoon as the Fomentation is over; which Method you muſt continue till the two Wounds are cicatrized.

This Gentleman ſeems to make but a ſlight Matter of this Diſeaſe whilſt others whom I have mention'd gives it up as incurable. But I obſerve this Author does not ſpeak with Authority, as if he had perform'd the Operation. It is certain there is no great Difficulty in dividing the Adheſion of the Parts; but the main Point is to heal the Wounds, and at the ſame Time to hinder the Parts from reuniting again. His Method of applying the falſe Eye in order to hinder the Junction of the Parts, in all Appearance, will cauſe a greater Diſorder than ſome of theſe Diſeaſes themſelves, becauſe there may be Danger of fretting the Globe of the Eye, which might be follow'd by an Opacity of the Cornea, and ſometimes an Inflammation of the Choroides, which later is often attended by a Diſſolution of the vitreous Body, and an Aleration of the Cryſtalline; and ſometimes the other Eye ſuffers the ſame Diſorder. For we have ſometimes ſeen that by applying a Glaſs Eye in an Orbit where the Globe has been ſunk, it has cauſed the Loſs of the other Eye; ſo that if Mr. *St. Ives*'s Method of putting the Plate of Lead between the Lid and the Eye is made uſe of, after the diſ-uniting of the Parts, it ought to be done very cautiouſly, and one muſt be always upon the watch, for fear of the aforeſaid Accidents. I will here give an Account how Mr. *Antoine* cures recent Ungulas, which is as follows.

He makes uſe of a dry Collyrium, "Dried
" Bones a Scruple, of fine Cryſtal half a
" Scruple, fifteen Grains of white Vitriol,
" Florentine-Iris half a Dram, and a Dram
" of Sugar-candy, all reduced into fine Power;
" of which I'll put a little upon the
" Ungula with the Finger, or elſe with a
" Tooth-picker; and that to be repeated
" three or four Times a Day; and obſerve
" to waſh the Eye half an Hour after this
" Application, with ſome cooling Ophthalmick
" Water.

" The Cryſtal which enters into this
" Collyrium, and whereof each Particle reſerves
" ſmall cutting Angles, as one may
" ſee by the Help of a Microſcope, only
" ſerves in ſome Manner to excoriate the
" exterior Surface of the Ungula which gives
" Occaſion to the Humidity with vvhich it
" is moiſten'd, to run out, and at the ſame
" Time to excite a ſlight Suppuration, as
" well as to favour the Penetration and the
" Action of the other Remedies. We ought
" not to be afraid of making uſe of this

" Remedy, although it ſeems new, I give
" my Word, I never ſaw any bad Effect
" happen from it, having made uſe of it
" ſeveral Times myſelf, imitating an old
" Practitioner whom I formerly knew, who
" made a Powder of equal Parts of Sugar-
" candy and of Cryſtal, whereof he did
" not only make uſe of it, for recent Un-
" gulas, but likewiſe for Abbugos, and for
" Ulcers which wou'd not mundifie, and
" that with pretty good Succeſs.

Now we ſee by this great Author's Words that the cutting Points of the Cryſtal, are only to excoriate the Ungula, by which Means the Moiſture therein contain'd may run out. From whence I take it, that it is only the Quantity of Fluid which is incloſed in the Fibres of the Ungula which cauſes their Bulk, ſo that my Method which I have deſcribed by cutting the lare Ungulas a-croſs at their inferior Parts, or by taking a Piece out, we intercept the Communication of the Fluids from running through the Tubes, and that in Courſe will hinder the Parts beyond it from growing; and by Conſequence the Ungula muſt wither: If the remaining Part ſhou'd not conſume ſo faſt as you wou'd have it, one has only to ſcarify them according to the Method which I have already mention'd: And if there ſhou'd be any unſeen Excreſcence beyond the Parts that are cut, which might proceed from ſome inward Cauſe, *viz.* any Humours of the Body, it would not admit of any Cure, till firſt the principal Springs be removed. There is a very remarkable Cure of an Excreſcence on the Conjunctiva of the Eye in the Tranſactions of the *Royal Academy* of *Sciences* for the Year 1703, which I will here quote. It is the eleventh antomical Obſervation in the Hiſtorical Part of the ſaid Year.

Mr. du Verney, *jun. reports the Manner how he cured an Excreſcence on the Eye of an Eccleſiaſtic of* Lyons, *it was on the Conjunctiva, it began by a ſmall red Point at the little Angle, and became a ſpungy Excreſcence, whereof the Point abſolutely cover'd the Cornea, without being adherent to it. The internal Remedies having not ſucceeded, he was obliged to hazard a Chirurgical Operation, which was ſucceſsful, and they took off the Excreſcence with the Point of a Lancet, but there came a ſecond, which was again took off, and was ſucceeded by a third, ſo that they propoſed to the Patient the Application of Fire: He could not reſolve on it. It was then that Mr.* du Verney *ſaw it. After he had meditated upon the Diſeaſe, he order'd him to uſe for the ſpace of* 15 *Days a diaphoretick and purging Ptiſane, and in that ſpace of Time only to waſh the Excreſcence with Cæleſtial Water. In the following, he apply'd a Seton between his Shoulders, to give a Diverſion to the Humours,*

mours, and to facilitate the Action of the Remedies. He mix'd at the ſame time a little burnt Alum in the Cæleſtial Water; he alſo purg'd the Patient once a Week with the great Hiera of Galen. *All theſe Remedies join'd together for the ſpace of two Months ſtop'd the Source or Springs of the Humours which cauſed the Excreſcence, and it diſappear'd.*

Before we finiſh this Section, I will here report a particular fine ſlimy Membrane or Web, which I have obſerv'd to cover the Horny-coats of agonizing Eyes, and ſometimes it ſo tarniſhes the Center of the Cornea, that the Pupil almoſt diſappears; and I have even ſeen them in Perſons Eyes twenty Days before their Death, and I never ſaw any who had them ever recover. Mr. *Winſlow* gives an Account of theſe Webs, in a Memoir of the *Royal Academy of Sciences* for the Year 1721, where he ſays, that *this Web appears to be form'd from a Lympha, which naturally ouzes through the Pores of the tranſparent Cornea, of which* Steten *ſpeaks in his Treatiſe of Glands and Muſcles.* And at the later End of that ſame Memoir, that this Web gives Occaſion to a common Saying of his Country (*Denmark*) where they uſe to ſignify, that one is upon the Point of expiring, by ſaying, *it is all over, the Eyes are burſt.*

About two Years ſince, I was ſent for to viſit a young Infant, who had a Diſorder in her Eyes: I examin'd them, and found the right had been burſt, by the Cornea being flatten'd, and there was an Opacity all over that Coat; notwithſtanding this Opacity, I cou'd perceive a ſlimy Web, which ſlightly cover'd its Center. The Cornea of the left Eye was alſo beſmear'd with the ſame Subſtance as the right, that one could hardly perceive the Pupil, and the Eye was very much ſunk in its Orbit. I told the Perſons about the Child, that there was no Remedy for it; the Child died two Days after.

I have already made mention in my Treatiſe of the Diſeaſes of the Horney-coat, and the Cataract of the Eyes, of an Inciſion made through the Cornea for a Film Cataract in the outward Chamber of the Eye; I ſhall further confirm the Practice of cutting that Coat for ſeveral Diſorders in the auterior Chamber of the Eye from the Tranſactions of the *Royal Academy of Sciences*,

SECT.

Memoir of 1707 by Mr. *Mery.*

SECT. III.

Of Inciſions made on the Cornea.

A Man of *Sedan*, about forty Years of Age, having loſt the Sight of his left Eye by a darkning of all the Cryſtalline, which was become plaſtery, and as white and opack as cou'd be that of a boil'd Fiſh, was afterwards attack'd with a very conſiderable Ophthalmy and very painful, occaſion'd by the Glaucomatic Cryſtalline coming through the Hole of the Pupil, and placing itſelf over againſt it between the tranſparent Cornea and the Iris.

This poor Man not finding any Remedy in his Country againſt this Diſeaſe, which cruelly afflicted him, took the Reſolution to come and look for it at *Paris*; for which he addreſs'd himſelf to Brother *Charles* of St. *Yves*, Surgeon and Apothecary to the Reverend Fathers of St. *Lazare*, a Man of great Inſight in the Diſeaſes of the Eyes, and a great Coucher of Cataracts, but a zealous Follower of the Ancients. The Day being fix'd with the Patient for the Operation, this Brother acquainted me of it, and accordingly I went.

Being aſſembled, we learnt from what the Patient told us, this glaucomatic Cryſtalline which was detach'd from the vitreous Body, had ſeveral times paſs'd and re-paſs'd through the Hole of the Pupil, that every time it placed itſelf before the Iris; there happened a great Inflammation on the Conjunctiva, and inſupportable Pain; but when that Body placed itſelf behind that Membrane, thoſe violent Accidences immediately ceaſed, and he felt Eaſe.

At the End he told us, that the Glaucoma ſometimes plunged into the Bottom of the Aqueous Humour, and that now and then it came in the Middle, and there placed it ſelf; that in this laſt Situation he cou'd not perceive the leaſt Senſation of Light with his afflicted Eye; but when it left the Middle by ſinking down, his Eye was ſtruck with a weak Light, without perceiving Objects which were preſented to him, the ſame that happens to them who have a perfect Eye, in holding their Lids ſhut to the Light.

For the intire Cure of this painful Ophthalmy with which this poor Man was afflicted, we thought it proper to take out this Glaucoma then placed between the tranſparent Cornea and the Iris, in order to hinder the return of this afflicting Inflammation which tormented him.

To draw it out without Pain, Brother *Charles* of St. *Yves* firſt made an Inciſion through the Cornea, which he almoſt intirely croſs'd; afterwards he made uſe of a Needle to draw the Glaucoma through the Opening which he had made: But as this Body cou'd not ſupport the Efforts of that Inſtrument, and that it broke into ſeveral Fragments, becauſe its Parts had but little Unity one with the other, he was obliged to uſe a ſmall Ear-picker to take it out, and that Means happily ſucceeded. It was the 20th of *February* 1707 that he perform'd this Operation, during which three Things happen'd. 1. The aqueous Humour came all away thtough the Inciſion which was made in the tranſparent Cornea. 2. This Membrane outwardly became concave and convex to the inner Part of the Eye, which cou'd only be attributed to the coming forth of the Glaucoma and the loſs of the aqueous Humour; but the Cornea reſumed its ordinary Figure when we ſqueezed the Sides of the Globe of the Eye, and it loſt it as ſoon as one ceaſed to compreſs it. 3. The vitreous Body preſented at the Hole of the Pupil.

The Operation being done, he only applied to the afflicted Eye a Compreſs dipp'd in Brandy one Part, and Water two Parts mixt together, which was continued to be done till the perfecting of the Cure.

The ſecond of *March*, which was the eleventh Day after the Operation, I ſaw the Patient, and I found that the Cornea which had been divided by the Lancet, was already re-united, and alſo that it had reſumed its ordinary Convexity, becauſe, the aqueous Humour was renew'd; which they aſſured me happened two Days after the Inciſion had been made, and the 17th of the ſame Month of *March* the Patient came to ſee me, being ready to return to *Sedan*, where he had his Habitation.

I examin'd then with more Attention then I had done before, the Eye where the Glaucoma had been took from, and I ſaw that the Diviſion of the tranſparent Cornea was ſucceeded by a ſmall white opake Cicatrice, which had but a quarter of a Line in Largeneſs, but its Length occupied the Diameter of that Membrane. The Redneſs of the Conjunctiva was not intirely gone, altho' the Pain was intirely ceaſed ſoon after the Operation.

Mr. *Mery* gives us an Account in that ſame Memoir of the Year 1707, of a Prieſt *who ſometime ſince conſulted him upon a Cataract which was then placed between the tranſparent Cornea and the Iris. This Cataract floated at the leaſt Movement of the Eye, in the aqueous Humour, below the Pupil, which in part it ſtopt, and cauſed a very painful Ophthalmy on the Conjunctiva, like that Glancoma of the Man of* Sedan.

Mr. *Mery* ſays, *That the Prieſt told him that his Cataract had been formerly ſeated behind*

behind the Iris, where it had been couch'd, and had remained hid a conſiderable Time; and that it did not riſe, nor appear, and did not paſs through the Hole of the Pupil till two Years after the Operation.

Memoir for the Year 1708, *by Mr.* Mery, *who further ſays.*

THIS ſame Prieſt being come a ſecond Time to aſk my Advice, I counſel'd him, that he might be deliver'd from his Inflammation, to have the Cataract took out of the Eye by an Inciſion made through the tranſparent Cornea, and I aſſured him that he wou'd recover his Sight as he had done the firſt Time. He believed me, and he apply'd himſelf to Mr. *Petit*, Maſter Surgeon of *Paris* and a famous Anatomiſt the 17th of *April* laſt paſt for the Operation. I aſſiſted with Brother *Charles* of St. *Yves* Surgeon and Apochecary of St. *Lazare* who in that ſpring Seaſon had couch'd fifty-ſeven Cataracts. It was the following Method Mr. *Petit* took to draw it out.

He firſt paſs through the tranſparent Cornea a channeld Needle below the Pupil, afterward conducted a Lancet into the Channel; he cut the Cornea from the entring Hole of the Needle to the Hole of its going out, and then drew out with a ſilver Earpicker this Cataract through the Inciſion, which he did with a great Deal of Dexterity.

This Prieſt is well at this Day, he can diſcern Objects, and ſee enough to conduct himſelf.

The Hiſtorical Part of the Tranſactions of the ſame Academy for the Year 1709, *alſo ſpeaks of Inciſions made on the Cornea, which is as follows,*

Mr. *Gandolphe* had cauſed this Operation to be practic'd at *Dunkirk*, upon a Man, to whom a Stroke given on his Eye, had caus'd a fall of Blood on the aqueous Humour. As it was intirely darken'd, and its Sight extinguiſh'd, he had only remaining a weak Senſation of a great Light; to the reſt there was no other Accident, Mr. *Gandolphe* found that the extravaſated Blood was in a too great Quantity to be diſſipated by topical Remedies, and otherwiſe not quick enough, and that it might by its long Stay forever darken the aqueous Humour. It was then reſolv'd to open the Cornea of the deceaſed Eye, and there were three Inciſions made, becauſe all the Matter which was to be evacuated did not come away by the two firſt. They were all three made croſs ways, and they did not cauſe any Pain. We only apply'd to the Eye Compreſſes dipt in a Mixture of four Ounces of Plantain Water, and two Ounces of Vulnerary Water, In eight Days, counting from the firſt Operation, the Eye reſum'd its natural Tranſparency, and there remain'd no Cicatrices from the Inciſions; this laſt Fact is very remarkable. Mr. *Gandolphe* ſays, that he had found the ſame Thing in an old Book of Phyſic, but he had intirely forgot it.

We knew in this Cure that the Reſolutives, ſuch as the Parſley and the Chervil, which are excellent to diſſipate Blood in bruiſed Fleſh, produc'd but a bad Effect to the Eye, to which it caus'd Pain, and render'd the Sight confus'd.

When the Eye was cured, we ſaw that the Pupil remain'd always very much dilated, and to that Degree, that its Diameter was double to what it had been. But as it was extreamly round, one could not miſtruſt that the Iris which forms it had been wounded by the Lancet, and by which it had loſt its Springs. It had loſt it however, or at leaſt its greateſt Part, but by another Cauſe; it may be probable, from the Stroke which had cauſed the extravaſated Blood. That Eye which has a large Pupil ought to be more commodious in a leſſer Light, and the other on the contrary in a greater," and there is Reaſon to believe that this Man makes uſe of them alternatively.

To this Experience, and to the Fact of Mr. *Gandolphe*, Mr. *Littre* has join'd ſome Reflections.

He advertiſes, that we ought not to take it for a general Principle, that the Inciſions of the Cornea do not leave any Cicatrices, and Mr. *Gandolphe* agrees with him, that they ought to leave ſome, when they have been made upon Eyes afflicted with Fluxions, with Ulcers, and with Inflammations, for then the Tiſſues and the Veſſels of the Cornea having been extreamly dilated, the nouriſhing Juices are carried in a greater abundance, and they attach confuſedly, 'tis that which forms the Cicatrice; but it is viſible, that it may have another Cauſe, where this Reaſon ceaſes, ſuch as we have been ſpeaking of.

Mr. *Littre* wou'd always have the Inciſions made on the inferior Part of the Cornea, as much becauſe that the extravaſated Blood, or the Pus may come freely, and that the Cicatrice, if there is one, may leſs prejudice the Sight. By this laſt Reaſon, the opening ought to be as ſmall as may be poſſible.

He recommends that the Inſtrument we make uſe of ought to have a good Edge, and not very pointed, well edg'd, becauſe the Globe of the Eye will be leſs ſhak'd by the Punchion, and that the Veſſels from whence the Blood was ſpilt do not open, a

little

little pointed, becauſe the Surgeon will be in leſs Danger of pricking of the Iris.

For the further preventing of this Accident, he counſels the Surgeon to keep the Globe of the Eye ſteady, before the Inciſion is made, and that he gives ſuch a Situation to the Iris, that it may be as far off from the Cornea as poſſible. Now we will proceed to anſwer Mr. *Cheſelden.*

C H A P. II.

SECT. I.

MR. *Cheſelden* exhibits page the 19th, three Figures of Eyes, which ſays he, *I contriv'd to explain an Operation which I invented ſome Years ago, and printed a ſhort Acccnnt of in the* Philoſophical Tranſactions, *and have often practiſed with Succeſs.*

It is true, there are three Figures of Eyes; the firſt Figure has an opening in the middle of the Iris oppoſite to the Center of the Cornea. The ſecond has an opening oppoſite to the two thirds of the Cornea downwards, which was made there becauſe there was an Albugo on the upper Part of the Cornea, the Reaſon is very juſt for making of it ſo low; the third Figure repreſents a ſmall Knife or Needle in the Eye. Now we will examin whether the Figures and the Diſcourſe are ſufficient to explain his new Operation of the Iris. Some Modern Authors, eſpecially Mr. *Antoine*, gives us a particular Account of their Operations on the Eyes, and mention to what Degree the Perſon ſaw after the Operation; but this Gentleman leaves in Silence what other Authors took Pleaſure in puliſhing,

This Diſtemper for which this Operation is perform'd, is either a total Cloſure of the Pupil, which is ſometimes natural, and ſome times happens from Inflammations; or elſe is when the Pupil is extreamly contracted, and the inner Edges of the Iris growing to a Cataract, or part of a Cataract after couching.

In Caſe there is a total Cloſure of the Pupil, by what Signs can we know there is no Cataract behind it? He gives us no Account of it; ſo that we may ſuppoſe that he means, as ſome Authors have ſaid, that they can be but blind, and ſo the Operation muſt be attempted; but it will be of very little uſe to perform this Operation if there is an Opacity beyond it. If there is no ſuch thing as knowing of it, why wont he own it, and tell us we muſt go cautiouſly to work, for the Method of Operation ought to be quite different, where the Arachnoides and Cryſtalline are tranſpa-

rent,

rent, and where they are opake; becauſe in the former we muſt preſerve its Tranſparency, which I ſhall take a particular Notice of preſently, but ſhall firſt make an Obſervation upon an Operation of this Kind, which Mr. *Cheſelden* perform'd, which is as follows.

The beginning of *June* 1731, by chance I met with a Man who ſaw juſt enough to diſtinguiſh large Objects. I examin'd his Eyes, on the Corneas of which I found two large Cicatrices of a very thick Subſtance. Thoſe Cicatrices extended all over the lower Part of thoſe Membranes, and almoſt to their Centers. The right Eye had an Opacity beyond the Pupil, and which was moderately dilated; in the left Eye the Pupil appear'd to be united in its greateſt Part, with a very irregular Extenſion of the ſtrait Muſcles of the Iris, with a ſeeming Hole a little of one Side from the Center, about the bigneſs of a large Pin-hole, not round, but oblique in Figure, This Man told me, that Mr. *Cheſelden* had cut the Iris of his left Eye croſs, and that he ſaw no more after this Operation than he did before it was done. We ſhould have been mightily obliged to that learned Gentleman, if he had acquainted us, why after this Operation was perform'd the Patient did not ſee; but we may ſuppoſe there was an Opacity either on the Arachnoides,

noides, the Cryſtalline, or in the vitreous Body. There was another material Point wanting, *viz.* That after cutting of this Man's Iris of his Eye croſs, how it came to join again? For if they all join as this Man's had done, the Operation wou'd be of very little Uſe.

The inner Edges of the Iris growing to a Cataract after couching, in Courſe this cloſes it; and in Caſe that it grows to part of a Cataract, it alſo cloſes it; as they both cloſe the Pupil, how ſhall we know whether it be to a whole one, or part of one? It wou'd be neceſſary to know the Extent of the Cataract, whether it is towards the ſuperior Part of the Vvea, or the inferior Part, ſo as to make the opening of the Vvea and Iris either above or below the Cataract; but Mr. *Cheſelden* ſeems to fix it in the lower Part which I ſhall make mention of preſently.

The manner of doing this Operation is thus; the Eye-lid being firmly held open by an Inſtrument, a ſmall Knife or Needle, edged on one Side, is thruſt through the Tunica Sclerotis, *as in the lower Figure, and then forward through the Iris, the Edge being turned to the Iris; in drawing of it out, a Slit is cut, as in the two upper Figures.*

He mentions but one Lid to be held open; I own the upper Lid covers more of the Eye than the under one, but I believe, it wou'd be neceſſary for both Lids to be kept open by an Inſtrument. He does not tell us what Part of the Sclerotis he makes his Puncture through, nor what Part of the Vvea and Iris the Needle is to paſs through, but only refers us to the third Figure where the Needle appears to have gone through the Sclerotis, about a Lines Diſtance from the Edge of the Cornea next to the Temple, and ſeemingly puſh'd through the Iris about a Line from the Edge of the Cornea next to the Temple; and then the Point appears to be puſh'd over the outward Surface of the Iris, about a Line from the Edge of the Cornea next to the Noſe, ſee his third Figure, becauſe he has not explain'd himſelf by Words; and if I apprehend it right, the laſt Figure repreſents as if the Needle had gone through the Parts which I have been ſpeaking of; after which I ſuppoſe the Edge of the Needle is turn'd towards the Iris, ſo that by drawing of the Inſtrument out, a Slit is cut. In Caſe there is no Cataract, and that the Arachnoides and Cryſtalline are tranſparent, I am very certain there will be a ſcratch made on the Arachnoides, and perhaps cut, which cannot well be avoided, becauſe there is but a ſmall Space between the Iris and the Cryſtalline, and which Cryſtalline is cover'd with the Arachnoides, which is properly its Capſula; and the Vvea itſelf that lines the inner Surface of the Iris, muſt take up ſome of that Space which is call'd the inner Chamber of the Eye. The Iris muſt give way in courſe, when preſs'd againſt by an Inſtrument; and the ſcratching or cutting of the Arachnoides will cicatrice, and thoſe Parts which were tranſparent before the Operation, muſt become opake; this lying before the level to the opening of the Iris, will obſtruct the Rays from paſſing to the Fund of the Eye.

In caſe Mr. *Cheſelden* means that the Needle ſhou'd be thurſt through the Sclerotis, about a Line from the Edge of the Cornea towards the Temple, and then through the Choroides, and through Part of the vitreous Body, from thence between the ciliar Productions into the inner Chamber of the Eye, then the Point going forward betwixt the Vvea and the Arachnoides, the Edge being turn'd upward when in the Chamber, be puſh'd forward to the further Part of that Chamber, that is, within a Line from the Edge of the Cornea next to the Noſe, and turning the Edge of the Needle towards the Vvea, there direct it through the Iris; ſo that by drawing the Needle towards the Temple, a Slit is cut through the Vvea and Iris, as in his two upper Figures. If this, I ſay, be his Meaning, I leave to the learned Part of the World, whether it is ſufficient to ſhew, that the Openings are done, without proper Inſtructions how it ſhou'd be perform'd. Mr. *Taylor*, in the Dedication of his Book to Mr. *Cheſelden*, ſtiles him in Part, General of the Surgeons. All Generals gives Order how their Soldiers ſhould attack, and how to retreat; but he neither tells us how to attack with the Needle, nor how to draw it out.

When this Diſtemper is without a Cataract, its beſt to make the Operation in the middle, as in the upper one; but if there is a Cataract, or Part of a Cataract, then to make it higher, that the Cataract may not obſtruct the Light.

The Query is, when the Pupil is cloſed, and its Edges ſticking together, then to know whether there is a Cataract behind it or no, as I have already ſaid; becauſe he ſays this Operation is beſt to be made in the middle when this Diſtemper is without a Cataract I cannot apprehend how we ſhall do to know it, unleſs the Gentleman will give us further Inſtruction upon the Matter. In Caſe the Edges of the Pupil grow to a Cataract, then it is evident, becauſe that Part of the Cataract cloſing the Pupil appears whitiſh, yellowiſh, or greeniſh, according to the Colour of the Cataract; and in Caſe it grows to part of a Cataract, then it may be known by the ſame Signs, as to its Colour, but not to its Extent.

Theſe Cataracts are generally very ſmall, and ſometimes by Reaſon of their Adheſion not to be removed.

As this Gentleman has not given us any Account of the Nature of the Cataract, and why theſe Cataracts are generally very ſmall, and the impoſſibility of removing them by reaſon of their Adheſions; we will try to unfold it as well as we can, by examining the Nature of the Opacities of the Arachnoides, and thoſe of the Cryſtalline, eſpecially the former, which is the only Cauſe in my Opinion, that joins together the Edges of the Pupil, which I ſhall try to prove in the following Sheets, but we will firſt take a little Notice of the two Cataracts adhering to the Pupil which may be ſeen in the *Hiſtorical Tranſactions* of the *Royal Academy of Sciences.*

The firſt Account of which was, Mr. *Littre*, in the Year 1707, brought to the Academy, and ſhew'd the Company an Eye of a young Man of 22 Years, with a membranous Cataract in it covering the Pupil, which adhered to the inner Edges of the Iris, within half a Line of the Pupil, and a Line and half from the Cryſtalline. The ſecond Cataract was an Opacity of the Cryſtalline, which Mr. *Mery* took out of an Eye that ſame Year, which adhered, or as Mr. *Cheſelden* calls it, grew to the Edges of the Iris; and this Membrane cover'd the greateſt Part of the Cataract.

Thoſe Cataracts were of two different Kinds or Natures, both adhering to the Edges of the Pupil; it is a Queſtion whether the former might not be remov'd, or an opening made in it, without cutting of the Iris through? The firſt being a membranous Cataract, and at a Line and half's Diſtance from the Cryſtalline; I think it may be done without it, by the Deſcription which I ſhall give preſently. The ſecond was that of the Cryſtalline, which was become opake: The Cryſtalline being of a Body thicker than the membranous Cataract, it requires that we conſider firſt, the Nature of its Opacities, which I ſhall take Notice of in its proper Place.

The Needle for this Operation of the membranous Cataract adhering to the Edges of the Pupil, ought not to be large, becauſe of its going between the Vvea and the Cryſtalline's Capſule, if it is too big there will be Danger of wounding the one or the other; the End of the Needle muſt be flat, about two Lines diſtant from the Point, and edged on both Sides about a Line: The Needle from the Point becoming larger like a Lance, and the Shoulder of the Needle which is to go towards the Cryſtalline muſt not be edged, for fear of wounding the Arachnoides, but the other Shoulder may, becauſe of making a ſufficient opening in the Sclerotis, that the Needle may go eaſier through, by which an Inflammation may be prevented. For the better knowing the Edges of the Needle, you may put a Mark on the Handle of the Needle, which is in a Line with that Shoulder which is edged. The Patient being plac'd in a Chair, and the ordinary Defenſive being made, and Compreſſes dipt in it for the Eyes as in the manner which I deſcribed for the Operation of the Cataract. The Patient turning his Eye towards his Noſe, the Puncture muſt be made about three Qurrters of a Line from the Edge of the Cornea next to the Temple, there going through the Sclerotis, Choroides, then betwixt the ciliar Ligament into the inner Chamber between the Vvea and Cryſtalline, by puſhing the Needle towards the middle of the Cataract. It may be aſk'd by ſome how they ſhall do to know when they are come to the middle, becauſe the opake Body will hinder them from ſeeing the Point of the Needle, that is true; but as the Membrane is but thin, by preſſing gently the Point of the Needle againſt it, one will perceive it give Way by its being a little eminent, and when you think you are in the middle, make a Puſh through the Pellicle, after which dilate the Parts by preſſing the Needle here and there againſt its Edges, and then turn it round the Hole; which I believe will make a Hole ſufficient enough for to give admiſſion to the Rays to paſs to the Fund of the Eye; and by this Operation the Iris may be preſerv'd whole. We will examin the Opacity of the anterior Part of the Cryſtalline's outward Envelopement, or Wraping, which is call'd the Arachnoides.

This Part moſt commonly grows opake by an Abſceſs in that Membrane; in Caſe the Abſceſs is in the Middle, and oppoſite to the Center of the Pupil; this Abſceſs will occaſion an Inflammation on all the adjacent Parts; if the Inflammation be great in theſe Parts, it will ſwell the Vvea and Iris to that Degree, that the Edges of the Pupil will almoſt touch one another, and ſometimes they do. This Inflammation ſometimes cauſes a Phthiſis, or Corruption of the Edges of the Pupil, thoſe Parts rubbing againſt the Abſceſs of the Arachnoides, which mutually throwing out their little Fibrous Hooks, they interlace one into the other, and then they cicatrize, and are join'd one to the other; in Caſe the Corruption does not deſtroy the Partition of the Chambers of the Eye before it has ſpent itſelf. By this Means, the Edges of the Pupil may grow to a Cataract, or Opacity of the Arachnoides; and we will ſuppoſe all the anterior Part of the Archnoides to be tranſparent,

parent, except that opake Part in the Middle, which we will imagin to be very ſmall, and that the Pupil is drawn almoſt together like a Purſe, round this Opacity or Cataract. Sometimes I have ſeen ſmall Opacities on the Arachnoides, ſome bigger and ſome leſs, which were not adherent to the Edges of the Pupil: They are not to be remov'd, becauſe they are in the ſame Continuity with the other Part of the Arachnoides, which is tranſparent. Mr. *Cheſelden* ſays, they are not to be remov'd, becauſe of their Adheſion, and gives no Reaſon why. By the Word Adheſion, which comes from the *Latin* Word *Adheereo*, I underſtand a ſticking, cleaving, or faſtning to any Thing; by that the Gentleman wou'd make theſe Opacities, or Cataracts, as he calls them, to be ſome Pellicles, or Skins, which had fell from ſome other Part, which had been ſtuck and fix'd there; and which in my Opinion, is quite contrary to the Thing it ſelf, becauſe that the opake Part which I have already ſaid, is in one Continuity with the tranſparent Part; but it is only a particular Part of this Membrane, which had loſt its Tranſparency, and is become opake by the Obliquity of its Pores; ſo that if one was to attempt its couching, we tear all the other Parts of the Arachnoides, which is tranſparent, and alſo the fore Part of the Cryſtalline, and that wou'd cauſe a more conſiderable Diſorder than the ſmall Cataract; and that is the Reaſon, in my Opinion, they cannot be remov'd. I have already explain'd how theſe ſmall Cataracts comes to adhere to the Edges of the Pupil. Now we will ſhew how the Pupil adhering or growing to theſe Cataracts may be detach'd one from the other, by which the afflicted may ſee a little in a ſhady Place, provided the Opacity do not extend the Breadth of a Pupil in its natural State. But our Author ſays, they are generally ſmall; ſo upon his Authority we will attempt the Operation in the following Manner.

Having firſt made the Punction through the Sclerotis, and Choroides with a flatiſh Needle, having a Point, and edg'd as thoſe for the common Operation of the Cataract, and then drawing it out, introduce into the Opening, a Needle that is flatiſh towards the Point, without any Edges or cutting Point, and puſhing its blunt Point towards the upper Part of the Adherency, which you will perceive by the Iris bending in that Part where the Needle preſſes againſt it, preſs gently upon the Coheſion, by which Means one may tear thoſe little Fibres that keep the Parts together, by firſt preſſing the thin Part of the Needle which-may make them give Way, then turning the flat Part of it; there muſt be a Mark on the Handle of the Needle, to know the flat Part from the other; ſo ſoon as one Part is undone, you keep gently preſſing and taking Care when the Needle is at that Side of the Iris which is towards the Noſe, that the Point muſt paſs the Edge of the Pupil about the Thickneſs of a Shilling, or elſe it will not bear Weight enough to divide the Parts; but in Caſe that ſome Part of the Edge of the Pupil ſhou'd adhere ſo ſtrongly, that by gently preſſing on them they will not give Way, which you may eaſily find by the Edges of the Iris ſtretching too much; then it wou'd be better to leave it as it is than tear the Parts; for altho' ſome of the Parts are left adherent, that Part which is undone may dilate and contract. I have ofteen ſeen, that one Part of the Pupil has been adherent to the Cornea, which cou'd not happen but by an Abſceſs on the Edge of the former, and an Inflammation of the latter, by Reaſons already alledg'd; and that thoſe Parts of the Pupil which were not adherent to the Cornea, dilated and contracted very well, and the Perſons enjoy'd their Sight. I don't ſee why this Operation might not ſucceed; for in Caſe the Edge of the Pupil is undone by this Operation, the Cataract, or the Opacity of the Arachnoides being ſmall, the Pupil will dilate in a ſhady Place, and the Perſon will be able to ſee when there is not too great a Light.

The ſecond is a Glaucoma of the Cryſtalline adhering to the Pupil by the help of its Capſule. The Cryſtalline becomes opake by Spots, either in the anterior Part, or ſometimes in its Center, and ſometimes its whole Body is ſhrunk for want of its nouriſhing Juices; I refer you to a more particular Cauſe of the Opacities of the Cryſtalline in my Treatiſe. I believe theſe Cataracts cannot be adherent to the Pupil, without the Ulceration of its Capſule, and likewiſe of the Edges of the Pupil, for Reaſons already ſaid. All this while, is it the Arachnoides, or Capſule, that the Edges of the Pupil ſtick to? I don't believe that the Pupil cou'd grow to the Body of the Cryſtalline, in Caſe that it was intirely diveſted of the Arachnoides: When the Subſtance of the Cryſtalline is remov'd from its Seat, it has no more any nouriſhing Juices, and is not thence forward capable of growing to the Pupil; it may a little ſtick to it, and ſeemingly ſtop the Pupil, but is not capable of keeping the Parts together of itſelf, unleſs there was a Diſeaſe of the Iris; for the Contraction of the ſtrait Muſcles of the Iris in a ſhady Place would dilate the Pupil. I am almoſt of the Opinion, that the Subſtance of the Cryſtalline has no Senſation of feeling at any time; becauſe we ſee a great many Opacities of the Cryſtalline happen without the Perſons afflicted having felt any Pain: But in an Opacity of the Arachnoides, or the vitreous Body, either alone, or when they are accompany'd with an Opacity of the Cryſtalline there is generally Pain; and thoſe Opacities of the Cryſtalline which grow without Pain, are always the beſt to be couch'd. Some may alledge and ſay, why might not a Cataract of the Cryſtalline grow to the Edges of the Pupil, as well as ſtick in the Bottom of the inner Chamber behind the Vvea? I anſwer, that there is an albuginous Subſtance in that Part, which is of a glutinous Conſiſtence, of which Mr. *Antoine* makes mention in his *Treatiſe of the Eyes*, page 127, * where he ſays, *That he found this in the Examination of an Eye after the Perſon's Deceaſe, in which Eye ſometime before he had couch'd the Cataract; and this ſame Cataract was ſeated behind the Vvea, at the Place where he depreſſed it, to which Part it ſtuck to by a Sort of Glue, as well as to the inferior Part of the Membrane of the vitreous Body. And I have often found it in ſeveral Perſons who have had the Corneas of their Eye burſt, ſome by Strokes, others by an Abſceſs of that Part. I will here report a Caſe of a poor Woman.*

The Beginning of *October*, in the Year 1730, Doctor *Frewen* of *Oxford*, ſent to me a Woman who was blind; her left Eye was burſt and the Cornea ſunk, that is, its

Convexity was flatten'd and adherent to the Iris: Of the right Eye, the Cornea had been burſt, but the exterior Blade of the Cornea ſeem'd to keep the Parts incloſed in the Eye, by a Sort of Tumour which it form'd in the Middle of the Cornea, about the Bigneſs of a middling Pea, and opake as well as all the other Parts of the Cornea. Three Days after ſhe came to me, examining her Eye as uſual, by firſt opening her Lids as ſhe lay in Bed, the Cryſtalline came through the Cornea intire and tranſparent, with an albuginous Subſtance, which is very tranſparent, and an aqueous Humour out of her Eye. In my Opinion, the albuginous Part, which is in the Bottom of the inner Chamber, is very proper to keep the opake Cryſtalline down when it has been depreſſed, eſpecially when it is aſſiſted with the vitreous Body, which in Part fills the Vacancy whence the Cryſtalline was diſlodged, See Mr. *Antoine* upon that Subject, *page* 127, of his ſecond Edition in Octavo, printed at *Troyes* in the Year 1722. But when an Opacity of the Cryſtalline has been couch'd, and it riſes again even to cover the whole Pupil, I don't believe it can grow there, becauſe the aqueous Humour is thin in that Part, and even the Secretion of the Parts themſelves wou'd hinder it from growing to the Edges of the

Pupil, eſpecially when the latter is not diſeaſed.

We will ſuppoſe, that after a Cataract of the Cryſtalline is couch'd, the Pupil is extreamly contracted, which moſt commonly happens juſt after couching; the Cauſe is plain enough, the Opacity being remov'd which hinder'd the Entrance of the Rays to the Fund of the Eye; and they ruſhing in with Precipitation, cauſe the Pupil to contract, which Contraction generally goes off in fifteen Days; but if the Edges of the Pupil, or the Vvea be wounded by the Needle in couching of the Cataract, then there follows ſometimes an Inflammation of the Parts, which diſtends them to that Degree, as to cauſe a Corruption, which corrupted parts ſpewing out their Matter, cauſe the parts themſelves to be raw, and if thoſe parts cicatrize before it has deſtroy'd the Iris, which ſometimes it does, the Progreſs of the Diſeaſe is ſtop'd; thoſe Cicatrices contract the Pupil, that when the ſtrait Muſcles of the Iris wou'd contract, they cannot draw the Pupil open, becauſe of theſe Cicatrices of the Edges of the Pupil interlacing one into the other, which hinder it from opening. By this Means, an Inflammation of the Iris may cauſe a Contraction of the Pupil.

But I cannot find out as yet, how a Cataract, or part of a Cataract, after couching, can grow to the Edges of the Pupil. When the Pupil is contracted by an Inflammation after couching, as I ſaid juſt now; the Cataract may riſe again after it has been couch'd, and ſtop the Hole of the Pupil, by leaning againſt the inner Edges of the Iris. I don't Doubt, but in Caſe a Needle had been introduc'd into the Eye again, that Cataract might be depreſs'd. But it may be, that the Gentleman thinks, that the Pupil is not ſufficiently dilated? In Caſe that it is ſo, I don't ſee any Cauſe of making the opening of the Iris above the Cataract, becauſe in the firſt Place, he is not certain, how high the Cataract is riſen; and in the ſecond Place, the upper part of the Cataract had been detach'd at the couching, and it riſen again, it is not very common for it to ſtick at the upper part. Suppoſe the Cataract cou'd grow to the inner Edges of the Pupil, he is not certain of the Extent of it; but he ſays we muſt go above it; yet it is plain, that by his Method, we muſt work without a Rule. If this Cataract is capable of growing to the Pupil, it muſt be then of ſoft parts fit to bear an Inſtrument; and the Operation, in my Opinion, may be done in the Middle of the Iris, by firſt making a Puncture through the Sclerotis, about two Lines from the Edge of the Cornea towards the Temple, with a Sort of Needle edg'd on one Side almoſt Semi-circular, which circular part muſt have about a Line and a half in its Convexity, it muſt likewiſe cut in the concave Part of it, which I ſhall give my Reaſons for preſently. The Needle muſt be puſh'd, as I ſaid, through the Sclerotis, and then through the Choroides and the Cryſtalline's Capſule behind the Cataract, which may be very eaſily done without hurting the anterior part of the vitreous Body, becauſe the Cataract lies forward againſt the Edges of the Pupil. The Convex-part of the Needle muſt be turn'd upwards when through the Capſule, and keep it ſo in that State, for fear of hurting the vitreous Body, till you have paſs'd the Needle about a Line beyond the Edge of the Pupil towards the Noſe, then turn the Convex-edge of the Needle towards the Vvea and Iris, and puſh it there through the Vvea and Iris, after which, by drawing the Needle towards the Temple, with the Parts engag'd in the Concave-part of the Needle, which is in Compariſon, like an edg'd Hook, cut it through, which muſt be done to ſuch a Length, as wou'd meaſure the Thickneſs of a Shilling, or a Half-crown, according as the Degree of Contraction requir'd beyond the Edge of the Pupil towards the Temple; then by turning the Handle of the Needle a little towards the Center of the

Cornea, you draw the Needle out of the Eye in this Method, for fear of cutting the Vvea and the Iris, where they join to the Edge of the Sclerotis and the Cornea. You cut the Cataract through at the ſame time you ſlit the Iris. The Part of the Cataract which is above the Inciſion, will fall into the Bottom of the inner Chamber, becauſe the Continuity of the Part which were join'd before the Operation is deſtroy'd; and in Caſe the ſuperior Part of the opake Cryſtalline ſhou'd remain to the upper Part of the Edge of the Pupil, that wou'd not ſignify much, provided the Inciſion of the Iris remains open.

In Caſe that the opake Cryſtalline is couch'd, and by its couching, it is forc'd through the anterior Part of the Arachnoides, by the tearing or renting of that Membrane; if the Arachnoides was tranſparent before the Operation, that rent Part will cicatrize and become callous, and by Conſequence opake. See Mr. *Moran* upon that Subject, in the *Tranſactions of the Royal Academy of Sciences* 1722. Why may not thoſe rent Parts of the Arachnoides adhere to the Pupil juſt after the Operation? They may, eſpecially if the Vvea and Iris is follow'd by an Inflammation, which may ſwell the Edges of the Pupil, ſo as to touch the Arachnoides, and the Arachnoides equally ſwelling, and being in part compoſed of vaſcular Subſtances, which will eaſily join to the Pupil. For I have often found in the Diſſection of diſeaſed Eyes, the anterior Part of the Arachnoides adhering to the inner Surface of the Cornea; ſince it is capable of growing to one, why may it not adhere to the Edges of the Pupil?

Can we call this ſort of Adherency, a growing to a Cataract after couching? It is not to the Cataract which is couch'd, but to the anterior Part of the Cryſtalline's Caſpule that is become opake, by couching of the Cryſtalline. In theſe Sorts of Adherency of the Pupil to the Arachnoides, the Operation may be ſafely done, by cutting the Iris in the Middle, becauſe the opake Cryſtalline is couch'd by being forc'd through the Arachnoides, and plac'd between the Vvea and the Arachnoides; and inſtead of the vitreous Body filling the Vacancy of the Cryſtalline, according to the Experience of Mr. *Antoine*, which we have already ſaid. This here is fill'd with an aqueous Humour, which runs into the Place whence the Cryſtalline was diſlodged, by the Report of Mr. *Moran*, in the *Hiſtory of the Royal Academy of Sciences* of the Year 1722. In this Caſe, there will be no Danger of hurting of the vitreous Body; and the Arachnoides adhering all round the ciliar Fibres cannot be remov'd, ſo that its growing to the Edges of the Pupil may be of Service here, for when the Iris is cut croſs through the Middle of the Pupil, the Parts which adhere to the upper and the lower Part of the Pupil are drawn open by the ſtrait Muſcles of the Iris. In this Caſe I approve of Mr. *Cheſelden*'s new Operation, ſome Sight being better than none, provided it continues, that is to ſay, the Parts ſo divided by his new Operation do not reunite again. But the Query is, how we ſhall do to know theſe ſorts of Coheſions? It may be eaſily known by the Operator who couch'd the Cataract, for moſt Cataracts of the Cryſtalline which are couchable, are either yellowiſh or whitiſh, and they have in their Degrees more or leſs of thoſe Colours. The Operator making thoſe Remarks, if he finds that he depreſſes the Cryſtalline in couching, and the Parts in the Pupil appear clear after it, and that there ſhould follow an Opacity in the Pupil ſome few Days after the Operation, and that the Pupil appears almoſt cloſed, he will eaſily perceive by its Colour, whether it is the former Cataract riſen again, or whether it is the Arachnoides become opake; becauſe the Opacities of the Arachnoides in this Caſe are clearer than thoſe of the Cryſtalline.

No Author who ever fell into my Hands as yet, inſtructed me how to know an Opacity of the vitreous Body; and which is very often follow'd by an Opacity of the Cryſtalline. We will then inform ourſelves as well as we can upon that Subject; and I will here deliver my Opinion upon that Matter.

I have always obſerv'd that Opacities of the vitreous Body have been attended with Pain in their Eyes; and that the Pupil had a free Motion. The afflicted have complain'd of a diminiſhing of their Sight, without much outward Appearance of an Opacity to be ſeen by looking into the Pupil. The Cauſe is plain, that it cannot be ſo outwardly perceiv'd by a great many who inſpect Eyes, they not being well verſed in its Diſeaſes. The vitreous Body is compoſed of tranſparent membraneous Cells, and the Opacity of this part can never grow ſo white as the Opacities of the Cryſtalline, becauſe this latter is compoſed of a Heap of membraneous Fibres all compacted together without any liquid part between its fibrious Membranes. But the vitreous Body contains in its Cellules, a liquid tranſparent Subſtance, like the white of an Egg, which liquid part I never found opake, but its membraneous Cells here and there loſe their Tranſparency, by which are caus'd the two different Colours, which makes that Part appear grayiſh, which is call'd a Glaucoma of the vitreous Body.

Theſe Diſeaſes are taken by ſome to be a *Gutta Serena*, becauſe they don't narrowly enough inſpect the Parts. There is this Difference between a *Gutta Serena* and an Opacity of the vitreous Body, that the Pupil has a free Motion in the latter, and not in the former. Theſe Opacities of the vitreous Body are follow'd by an Opacity of the Cryſtalline, which often comes on very faſt after it. The Generallity of Operators then ſay, we ſee what it is now, it is a Cataract. I told you what it was, and it will be ripe at ſuch a Time, ready for the Needle. What will it ſignify to couch it, when the Perſon cou'd not ſee before the Opacity of the Cryſtalline appear'd? They will ſee no more after the diſplacing of the Cataract, than they did before it was couch'd.

I appeal to Mr. *Cheſelden* in theſe Caſes; for he couch'd a young Gentleman three Summers ago, who had had the Misfortune to loſe his right Eye ſome Years before by ſome Shot from a Gun, which burſt that Eye, and his left Eye receiv'd ſome of the Shot, which ſlightly wounded it without penetrating the Globe. He had now and then Pain in that Eye, which ſometimes was attended with an Inflammation; at length his Sight conſiderably diminiſh'd, altho' there was no evident Opacity as they cou'd ſee in the Pupil. His Eye was ſoon affected by an Opacity of the Cryſtalline. This Gentleman was then in *Suffolk*, but a little after he came up to *London*, attended by a Surgeon of that Country, to be couch'd by Mr. *Cheſelden*. The Gentleman lodg'd at his Aunt's in *Plumtree-ſtreet*, near St. *Giles's*. The Day being fix'd for the Operation, the Operator went to the appointed Place; after he ſaw the Patient, and examined his Eye, he told the Gentleman's Aunt, that he could reſtore her Nephew's Sight, by couching the Cataract, as ſhe told me, notwithſtanding they told him of his being blind before there was an apparent Opacity to be ſeen through the Pupil. He then depreſs'd the Cataract, and there remain'd an Opacity of the vitreous Body; he came once or twice in the firſt fifteen Days to inſpect the Eye, but finding little Succeſs from the Operation, he declined going any more. The Gentleman's Friends, and he himſelf finding that, they ſent for another Oculiſt, who told them that there was a ſecond Cataract, and that by couching that ſecond Cataract he wou'd reſtore his Sight. But firſt of all, he made ſure of two Guineas in Hand, and he was to have three more when his Patient could ſee: He was not ſo generous as Mr. *Cheſelden*, for he wou'd take no Money of him unleſs he reſtor'd his Sight. The ſecond Operator needled the Eye, and ſcratch'd and tore the anterior Part of the vitreous Body, and by Conſequence tore ſome of its Cellules, for the Patient ſuffer'd intollerable Pain for the Space of fifteen Days.

About ſix Weeks after this laſt Operator had exerciſed his Art, I was deſir'd to deliver my Opinion upon what had been tranſacted. I firſt examin'd his Eye, where I perceiv'd the Cryſtalline was depreſs'd, but not to be ſo low as to be level with the lower Edge of the Pupil, for it paſt the Edge, the Thickneſs of a Line inclining towards the Temple. I cou'd ſee about half of the depreſs'd Body, which lay ſlanting from the Vvea to the lower Part of the vitreous Body, whence the Cryſtalline had been diſlodg'd, and it was of a glaucomatic Colour; and the Perſon cou'd hardly diſtinguiſh the Shade of large Objects. The Globe of the Eye was alſo ſoftiſh, for which I order'd him Fennel-roots boil'd in Wine, and apply'd to the Part: And when I call'd upon him two Months after that, I found that the Eye had reſum'd its Tenſity, and the grey Opacity was whiter than it was before, and the opake Cryſtalline ſeem'd to be ſomething lower than it was the firſt time I ſaw it, and it ſeemingly mov'd, and he complan'd of a Rolling in his Eye, which I took to be the Body of the Cryſtalline moving. I am of Opinion, that if this ſecond Operator had not needled his Eye, by which he tore ſome of the anterior Cells of the vitreous Body, of which I have already ſpoke (for thoſe parts cicatrizing afterwards, cauſed a greater Opacity) but had been left in the State it was after Mr. *Cheſelden* had depreſs'd the Cryſtalline; the Patient might have been able to diſtinguiſh Shades of ſmaller Objects.

In an Opacity of the Arachnoides, obſerve whether it is adherent to the Edges of the Pupil, and whether the latter is moderately dilated; and if the Cryſtalline is opake, tho' indeed, it does not ſignify much whether it is opake or no, becauſe if we attempt this following Operation, we muſt break it, for a tranſparent Chryſtalline is of little Uſe behind an opake Arachnoides. But before we proceed, we muſt get what Knowledge we can, by firſt examining the Patient whether there was any apparent Opacity in the Pupil when they complain'd of their Sight diminiſhing; it wou'd be of little Uſe to perform this Operation when there is an Opacity of the vitreous Body; and it is an eaſy Matter to know when there is a Diſorder in the optic Nerve; becauſe then the Patient cannot perceive any

Glimmering. Theſe Things being well examin'd, if the Patient can diſtinguiſh any Light, then the Operation may be attempted; and the following Method in all likelihood might ſucceed. Let the Patient be plac'd in a Chair, Side-ways to the Light of the Window. The Needle muſt be flat towards its End, and edg'd of each Side, about a Line and half. The Puncture muſt be made through the Conjunctiva, about a Line and half from the Edge of the Cornea, of that Side next to the Temple, one of the Edges being turn'd towards the Center of the Cornea, the other towards the Temple, having paſs'd it ſo into the Body of the Cryſtalline, turn the Edge upwards, and the other Edge in Courſe will be downwards, ſo work with the Edge upwards and downwards, to cut and divide the Parts of the Cryſtalline: In caſe the flat Part of the Needle was to be preſs'd upon it firſt, there wou'd be Danger of tearing the Edges of the Pupil, by preſſing the Cryſtalline too hard againſt the Arachnoides; after ſo working with the Edges of the Needle, then cut a Hole through the Arachnoides, in the ſame Manner which I have deſcribed in my Treatiſe of the Diſeaſes of the Horney-coat and Cataract of the Eyes, *page* 179 *; after which you muſt preſs the flat Part of the Needle upon the Parts of the Cryſtalline which had been cut; by which means you ſqueeze ſome of the Pieces through the Hole of the Arachnoides; and others will remain behind it. Thoſe Pieces that fall through the Hole will not irritate as much as the whole Body of the Cryſtalline, between the Cornea and the Iris. This Method of making a Hole through the Arachnoides, is making a Window for the Rays of Light to paſs through.

I hope my Arguments againſt Mr. *Cheſelden*'s new Operation of the Iris may be of ſome Uſe to the Publick, by giving a further Inſight into the Matter; and I leave the learned Part of the World to judge whether I have anſwer'd that Intention.

It may not be improper, before we finiſh this Section, to give you a fuller Account than I could five Years ago, of a Child's Eye who was born blind, occaſion'd by Opacities of the Cryſtallines, of whom I made mention in my Treatiſe of the Diſeaſes of the Horny-coat and Cataract of the Eyes, *page* 206 †, in which Place I inform'd you of the Nature of the Diſorder of his Eyes; that his left Eye had been needled by a Surgeon, but did not mention the Operator's Name, it was Mr. *Cheſelden*. Likewiſe that I had needled his right Eye, and that the Child was carry'd into the Country fifteen Days after my Operation.

This Child came to *London* a ſecond time, which was in the beginning of the Summer 1732, in order to conſult what cou'd be done about his Eyes: He lodg'd in *Cockpit-Alley*, as he had done five Years before. Hearing of his being in Town, I went to ſee him, at which time I examin'd his Eyes, and found no Alteration in that which Mr. *Cheſelden* had needled five Years ago. The right Eye which I had work'd upon, had a pretty large ovaliſh Hole, through the Middle of the opake Cryſtalline, which Hole appear'd very clear, with a free Motion of the Pupil. Notwithſtanding theſe favourable Tokens of Sight, the Boy told me he cou'd not ſee with his Eye; that all the Sight he had, came from the left Eye. It ſeem'd ſomething odd to me, that he cou'd diſcern through an opake Body beyond the Pupil of this Eye, and cou'd not ſee through a tranſparent Hole of the right Eye.

I was inform'd that the Boy's Friends in *London*, were perſuaded to put him into the Hands of a third Surgeon, altho' his Relations in the Country thought to employ Mr. *Cheſelden*; I waited with Patience to ſee what Succeſs this new Operator might have.

One may reaſonably believe, the Boy told this Surgeon that he could not ſee with his right Eye; upon which he examin'd amin'd it, and ſaid the Cataract was very well couch'd, but that there was a *Gutta Serena* beyond it, which he thought might be the Cauſe of his not ſeeing.

This Surgeon needled the left Eye, but did not find all the Advantage he expected: He attempted a ſecond time to depreſs the Opacity, which prov'd very detrimental to the Patient, for it was ſucceeded by a violent Ophthalmy: and in order to cure this great Inflammation of his Eye, he was kept in Bed for the Space of two Months, or thereabouts, with Poultices on his Eye; and they made him keep a low Diet, which by no Means anſwer'd the Intent. About three Months after the laſt needling, I happen'd to go that Way, and I ſaw the Boy in the Alley with a Cloth over his left Eye, with a Bruſh in his Hand rubbing the Wall. I ask'd him how he did, and what Sight he had of his Eye: He anſwer'd as he had done formerly, that he cou'd not ſee with the right Eye: Then I told him it was impoſſible for to ſee what he was about with a Cloth ſo cloſe over his Eye; he ſaid that his Sight came from the inner Corner of his Eye; then I inſpected it, and found the Globe of the Eye very ſoft; the Cornea was conſiderably diminiſh'd, but pretty tranſparent; the anterior Chamber had not above half its Diameter, the Pupil almoſt contracted, without any

Motion of the Muſcles of the Iris; the Edges of the Pupil ſeem'd to adhere to a thick Opacity.

This cauſed a very great Uneaſineſs to me, that the Boy and thoſe about him were ſo deluded, upon which I aſſur'd them he cou'd not ſee of this Eye; they anſwer'd, that the Boy ought to know beſt. Whatever I cou'd ſay upon this Matter made no Impreſſion on them: I had a Mind to make an exacter Trial, which I did about fifteen Days after in the following Manner.

Being at the Boy's Lodgings, there were three or four Perſons in the Room, I covered the right Eye which I had couch'd the Cataract in with my Hand, the other Eye was bare, then I preſented different Objects to him, but he had not the leaſt Senſation of any of them; then I took my Hand off from his right Eye, with which Eye he cou;d diſtinguiſh moſt middling Objects.

How cou'd a Perſon ſee with ſuch an atrophical Eye, where the Pupil was no bigger than a middiing Pin's-head, and a thick Opacity beyond it. I believe no more than with that Eye which the Tranſactions of the *Royal Academy of Sciences* of *Paris* for the Year 1730, *page* 328 * ſpeak of: It is a Memoir of Mr. *Morand*'s, where he gives an Account of the vitreous Humour of an human Eye, which was become oſſified,

ſified, that the Cryſtalline of the ſame Eye was in part petrified.

CHAP. III.

SECT. I.

The Nature and Cauſe of perpetual Images, with the real Figure of their Parts.

IN my Treatiſe of the Diſeaſes of the Horney-coat of the Eye and Cataract, *page* 102 *. I ſaid that I found Films in both Chambers, and mention'd how they are form'd; and at *page* 103 *, the Cauſe and Nature of purulent Cataracts; and deſcrib'd a particular Sort of purulent Cataract in a Miniſter's Eye. In my Opinion, theſe perpetual Images, which we are going to ſpeak of, take their beginning at the ſame Place as the purulent Cataracts do.

In all Appearance this Diſeaſe takes its Riſe from the exterior Surface of the anterior part of the Arachnoides, occaſioned from an Inflammation on that part, and this Inflammation cauſes a Solution of its Continuity, by a too great Quantity of Serum which there ſtagnates, and raiſes the exterior Pellicle of that Membrane here and there like little Bliſters; ſome are round,

other

other longiſh, according to the Quantity of Fluid therein contain'd; and in ſome Meaſure like the Bliſters of the ſcarf Skin, which riſes like a ſemicircular Blub, and ſometimes ſeveral of them break into one, and form divers Figures. The exterior Surface of the Arachnoides being in this Nature divided, when there flows a greater Quantity of Serum, it cauſes the Edges of ſome of its Parts to divide, while the other Parts remain attach'd; and that is the Cauſe in my Opinion, which makes theſe Appearances at a certain Diſtance from the Eye, by continually floating in the aqueous Humour; if they were quite detach'd, they wou'd drop down into the bottom of the inner Chamber; and if their Edges were not detach'd, they wou'd partly keep their Form, and not appear in different Figures, according to what I have obſerv'd, and ſhall here report.

I have been conſulted by Perſons who have had theſe Sorts of Images for twenty Years, and they cou'd diſtinguiſh as far as any Body, and even perceive the ſmalleſt Object that a naked Eye cou'd ſee. They deſcribed to me in part, the real Figure of theſe Images thus.

When they look'd at a middling Light, they perceiv;d a ſort of Membrane, ſomething like a Net-work, at a certain Diſtance from their Eyes; and this Membrane appear'd to have ſmall Blubs, all adherent one to the other. Some of theſe Pellicles were like the Wings of Flies according to their Circumference, but not to their Structure, becauſe the Wings of Flies are compoſed of oblique Fibres, interlaced between the Duplication of a fine Membrane, and the Spaces between the Fibres are even; and the Spaces of the former ſeem to be half globular, from the Reaſon already given. Some of theſe Pellicles appear like two Wings join'd to a ſmall flattiſh Body, and which ſeem one to paſs behind the other, and ſo open again. Sometimes there are two of theſe ſeeming Flies at a certain Diſtance one from the other; they apparently paſs one before the other. There are others, which are narrow and pretty long, like Threads or Lines; and they have apparent Blubs in them, notwithſtanding their Narrowneſs. Theſe appear in a ſerpentine Figure, then return again into a ſtrait Form. If ſome of their Parts were not detach'd, they cou'd not vary in their Shape. But before we proceed any farther, we will ſee what Mr. *Antoine* ſays, touching this Subject, in the ſecond Edition of his Treatiſe of the Diſeaſes of the Eyes, printed at *Troyes*, in the Year 1722. *page* 279.

The perpetual Images, are certain Shades, like Spiders Threads, Points, Wings of Flies, Fleeces of Wool and other Things of that Nature,

ture, which appear at a certain Diſtance before the Eyes, that one cannot obſerve any Fault in their Globes.

I call them Images, becauſe of their relation to Images, which preceed the Cataract, and perpetual, becauſe they ſubſiſt during Life, without being follow'd by Cataracts, as the others.

In their beginning, thoſe who are afflicted with them, by looking on flowing Water, the Skie, a white Wall at a ſmall Diſtance, or any other white Body, imagin that they ſee diſperſed in the Air an infinite Number of ſmall glittering Points, and they are in every Place where they tend their Sight. Afterwards theſe ſmall glittering Points darken, and they transform into little Circles, in Threads, or Cob-webs, into Wings of Flies, Fleeces of Wool, ana other ſuch like Things, which ſeem inſenſibly to approach their Eyes; ſo that thoſe Perſons jndge that theſe Things are at five or ſix Foot, and ſometimes a Foot, or at half a Foot from before them.

Both Eyes are not always equally afflicted, and ſometimes one Eye is only attack'd, without the other; but for the Generality, they are both afflicted at the ſame Time. Theſe Shades preſerve amongſt themſelves an equal Situation.

I

I have known Perſons who have been ſo incommoded, that they without thinking, have put their Hand before their Eyes to remove them, and when reading or writing it ſeemed to them as if thoſe Shades mov'd upon the Paper.

We diſtinguiſh theſe Images from thoſe that are Fore-runners of Cataracts, in this, that the former are a long Time forming, and being form'd, they augment but a little, and they are no more troubleſome than the Thing which they reſemble, in the Mind of the Patient, if they were actually ſeated between the Eyes and the Object which he looks at: On the contrary, the latter, which are Fore-runners of Cataracts, augment ſo much, that they are ſoon follow'd by a conſiderable diminiſhing of Sight.

Theſe Images, as I have already ſaid, ſubſiſt during Life, without our being able to diſperſe them by any Remedies. It is not that I propoſe their Cure, that I here deſcribe them, it is only that we may aſſure thoſe who are afflicted, that they will not be followed by the Loſs of their Sight; provided we know they have had them ſeveral Years without any ſenſible Augmentation. I have known ſeveral who have complain'd to me for fifteen or twenty Years of theſe Things, and who are at preſent in the ſame State.

It is pretty difficult to know truly the Cauſe of theſe Images, and the Parts of the Eye in which they are formed. Sometimes I have thought that they came from the Hurt or Indiſpoſition of ſome of the Fibres of the Retina, and at other Times, that they might have their Seat in the vitreous Body; but having conſider'd their Reſemblance to thoſe Images which preceed the Cataract; which like them, are ſeemingly without the Eye and flying in the Air, and keep to their ſelves an equal Situation, and that they ſubſiſt during Life. I am determin'd at preſent, that their Cauſe ought to be met with in the Cryſtalline itſelf, becauſe thoſe which are Fore-runners of Cataracts have their Seats there, or in the Membrane that covers it; which makes me conjecture, that it is a Fault of ſome of the Fibres which compoſe the exterior Pellicle of the Cryſtalline, or elſe a Dilatation of the Veins diſperſed through its Membrane. And what gives me a greater Inclination to this laſt Opinion, is that I have known by Experience, that thoſe who in their Youth have had a ſubtile Sight, and who were expoſed in the Courſe of their Lives to Wind, to Cold, and to the other Injuries of the Air, are more ſubject to it than others; becauſe theſe Things in ſome Meaſure ſtop in the Veins of that Membrane, the circular Movement of the Blood, and that which is continually puſh'd by the Arteries, finding an

Obſtacle which oppoſes its Courſe, ſtretches and inſenſibly dilates the Veſſels that contain it; and a Reaſon why this might happen the more eaſily, is that the Texture of thoſe Parts is found to be very delicate, and that theſe Varices are there form'd in the ſame Manner as in the other Parts of our Body.

You ſee what this learned Author ſays upon that Subject: But we will make a few Remarks on his Sentiments.

He ſays, that thoſe who are afflicted with theſe perpetual Images, ſee up and down in the Air an infinite Number of ſmall glittering Points.

In all Likelihood, thoſe glittering Points are the luminary Rays ſtriking upon the Convex-part of the ſmall Blubs, already ſpoke of in this detach'd Pellicle, at the time that they are expanded in the aqueous Humour; for when theſe ſeeming Wings of Flies paſs one before the other, the glittering Points are not perceived, becauſe the Convex-parts are transfigur'd. The Parts of this Pellicle that are not ſo eminent as the others, make the ſhady or darkiſh Part. Theſe Membranes moving up and down, hinder ſome of the Rays from paſſing forward to the Fund of the Eye, ſo that thoſe Rays which were obſtructed, are reflected back, and one may perceive thoſe glittering Points here and there on the

Images at a ſmall Diſtance from the Eye. It is very certain. that the floating Pellicles are tranſparent, for if they were opake, one wou'd not be able to perceive thoſe glittering Points. Mr. *Antoine* further adds, that theſe Images are a long time forming. I do aſſure him that I have ſeen them form'd in a Weeks time, by an Inflammation on the Arachnoides, which cauſes a detaching of the viſicular part of that Membrane, and they were no bigger at fifteen Years End than they were at their firſt forming. And our Author thinks that theſe perpetual Images are form'd by a Dilatation of the Blood-veſſels of the Cryſtalline's Membrane or Covering; if ſo, thoſe Parts in Courſe muſt look dark, becauſe they are fill'd with Blood, and by conſequence they could have no glittering Parts; and as all Varices are fix'd, they connot convert themſelves into divers Shapes, and then return into their former Figure.

We will now examin why the perpetual Images are diminiſh'd in their Bulk by inward Remedies.

In the Middle of *October* 1730, I was conſulted by a Perſon who had a Veneral Bubo on his left Groin, and Gonorrhæa with a Chancre that had conſum'd the Frænum, and the inferior part of the Glans where that Ligament had been attach'd. The Generality of People do not care for Salivations, till they have tried other Means; and I was obliged to fall into his Sentiment, by applying a Cauſtic on the Bubo, and gave him every other Day about ſeven Grains of green percipitate of Mercury, made up into a Pill with Conſerve of Heps, which in about ſix Weeks time had entirely clear'd the Urethræ. The Bubo and the Chancre were two Months before they were cur'd; but in the interim, he broke out all over in round hard Pimples, like ſmall Mulberries, very cruſty at Top, ſome dry, others moiſt; he had alſo Nodes on the Tendons of his Neck. The inner Membrane of his Noſe began to inflame, which ſoon communicated its Diſeaſe to his Eyes; for which I bled him in the jngular Vein, and apply'd a Bliſtering-plaiſter between his Shoulders, and all to no purpoſe, for he cou'd hardly diſtinguiſh large Objects. I informed him of the Danger of his Caſe, and that he would be intirely blind, unleſs he went through a Salivation, but he would not at that time agree to it. He had a Mind to try the Decoction of Guaiacum, which he continued for fifteen Days, and twice a Day he took it hot and ſweated; but it neither made any Alteration in his Eyes, nor of the Pimples of his Skin. He trifled time away to the latter End of *February* following; at which time he complain'd of a Soreneſs on the left Side of his Fundament.

I examined the parts, where I found a ſmall Tumour, about the bigneſs of a Haſel-nut, within a Quarter of an Inch from the outward Edge of the Sphinctor, ſomething inclining towards the Pereneum; I gently preſs'd upon it, and I perceiv'd a Fluctuation in it, and weighing a little harder on it, the Tumour diſappear'd, which made me judge that it had deep Sinuoſities. I did not much mind it, becauſe his Eyes were the moſt preſſing; at laſt he conſented to the Salivation, which I raiſed by Unction; but before I relate that Matter, I will mention the State of his Eyes.

The Twenty-fourth of *February*, there was an Inflammation on the Conjunctivas of his Eyes, and no apparent Opacities on the Horny-coats: He cou'd not bear a great Light, like thoſe who have that Diſeaſe call'd Hemeralopia, or Day Blindneſs, in which Diſeaſe their Pupils always contract pretty cloſe, and their Eye-lids ſhut to the Light; which Nature does in Order to hinder the luminary Rays from ruſhing through the Pupil, for when there goes a Quantity into the Eye, it cauſes intolerable Pain, by the wrinkling of the Arachnoides, in which place this Diſeaſe had its Seat; he alſo fancy'd there was ſomething flying before his Eyes, which could be nothing elſe but ſome ſmall Pellicles detached at one End, whilſt its other parts remain'd main'd attach'd, as I have already remarked. There was greater Obſcurity on the right Eye than on the left.

In the firſt State of this Diſeaſe, it only attacks the veſicular part of the Arachnoides. In the ſecond State, it ulcerates the vaſcular part of that Membrane; and in the third State corrodes through that Coat, and thoſe have their Degrees more or leſs.

I was aſſured this State happen'd to an unfortunate young Man, whom a Phyſician deſir'd me to viſit with him, which I accordingly did. I found an Ophthalmy on his left Eye, with an Opacity on the Cornea: He could hardly perceive large Objects, eſpecially when expoſed to the Light; at times he had violent pain. I propoſed to ſcarify it, but he did not think fit; I told the Phyſician, that this Caſe appear'd to proceed from a Venereal Foundation, and that the other Eye wou'd ſoon be attack'd: He told me that the afflicted had had a Venereal Gonorrhæa a little before, and that he wou'd not take the proper Remedies for it. About three Months after I had ſeen this unhappy Gentleman, I was told by one of his Friends that he was blind of both Eyes, and that he had gone through a Salivation, which had ſtopt the Progreſs of the Diſeaſe, but not reſtored his Sight. If he had gone through it at firſt, his Eyes wou'd have been ſav'd;

becauſe the Ulcers of the Arachnoides had made but a ſlight Progreſs. As all theſe Diſorders are cauſed to the Degree of Solutions on the continuity of the parts, ſo when the Solutions are healed; they are ſucceeded by a Cicatrice more or leſs large, according to the Extent of the Ulcers, which I ſhall have Occaſion to ſpeak ſomething more of, after the Salivation of the former Man, which was thus perform'd.

I took half an Ounce of crude Mercury, mixt in a Dram of Turpentine; then with two Ounces of Pomatum incorporated all together, made the Ointment. He uſed three Drams of it at the firſt rubbing, which was only from his Wriſts to the Elbows, and from the inferior part of his Knees down to the Ancles: At the End of twenty four Hours after the firſt rubbing, the Pain of his Eyes was gone, altho' he did not as yet ſpit. He ſtay'd two Days before the ſecond rubbing, becauſe I was cautious of raiſing it too faſt, and there was juſt the ſame Quantity of Ointment uſed as in the firſt time, and the ſame places rubbed. The next Day he began to ſpit a little. He anointed a third time, which was forty eight Hours after the ſecond rubbing, there were three Drams and a half uſed at this laſt Unction, which was begun on the upper part of his Thighs, and down to the Ancles. The next Day he ſpit pretty plentifully; and his Eyes grew better, for he cou'd bear more Light; there was no more then nine Drams and a half of the Ointment uſed at the three Rubbings, for he did not require any more.

The firſt of *March* he complain'd, that the Tumour already ſpoke of by his Fundament, beat and throb'd. I then made a ſmall Inciſion with a Lancet through the Tegument of the Abſceſs, from whence iſſued about two Ounces of Pus; then I introduc'd a Probe into the Orifice, and my Index into the Rectum; and I found that my Probe went two Inches ſtraight along the ſide of the Rectum. The Cauſe which induc'd me to make this Inciſion to let the Pus out, was for fear the Matter lodging there might hollow the Parts further, for every time he went to ſtool, the preſſing of the Excrements againſt the Sphinctor wou'd give Occaſion to the Matter to puſh here and there, and perhaps cauſe new Sinuſes. I only dreſs'd the part with a red Lead Plaiſter.

The Tenth, he complain'd of a Pulſation about the part, notwithſtanding the Pus kept running through the Inciſion. I was afraid that another Abſceſs was forming, and in order to prevent it, I laid the former open in all its Extent, about Noon that ſame Day. The Salivation continued very well.

I prepar'd the Apparel for the Operation in the following Manner, by making a very large Tent, and ſix middling Doſils, with a long Pledget all with Lint, then a triangular Plaiſter fit for the Place, and two Compreſſes, with the Bandage †. Having theſe Things in order, I took a crooked Inciſion-knife, edged on the Concave-ſide, with a ſmall Ball of Wax at its Point, then with my right Hand, I introduc'd it into the Inciſion which had been formerly made, and my Index-finger of the left Hand into the Rectum, and having paſs'd the Inciſion-knife into the bottom of the Sinus, I puſh'd it there through the Gut to my Finger, then I drew the Knife out equally with my Finger in the Gut, and cut all that was ingag'd betweem them. There was another Sinus that extended half an Inch along the Pereneum, which I alſo laid open. Then I dreſs'd the Wound by firſt putting the large Tent along the Inciſion of the Gut, but I firſt anointed my Index-finger of the contrary Hand to that which the Tent was put in with, and introdu'd it into the Rectum along the opposite Side to the Inciſion, then I put a Probe into the middle of the Tent almoſt to its bottom: The Probe muſt be held between the Fore-finger and Thumb, and the

Middle-finger of the ſame Hand againſt the ſuperior Part of the Tent, which will hinder the Probe from going through the End of it; and the Probe hinders the Tent from bending, ſo in that State I puſh'd the Tent forward between the Finger into the Rectum and the Inciſion, by holding the Middle-finger firm againſt the Tent. I always put the End of the Tent half an Inch beyond the Inciſion of the Gut, which is eaſily felt by the Finger in the oppoſite Side of the Gut, for it is ſlided along that Finger into the Parts. When I had got it as far as I mention, I drew the Probe out with my Fore-finger and Thumb, and kept my Middle-finger firm againſt the Tent, which keeps it in the Place where I laid it; then I put the Doſils to fill up the Parts, and over them the Pleget, then the Plaiſter and the Compreſſes, and over all the Bandage. The firſt Dreſſing is always apply'd dry, as much to ſtop the Hemorrhagy, as to abſorb the ſuperfluous Moiſture. If the Tent is put directly in the Inciſion of the Gut, *viz.* to preſs againſt its lower Part, it muſt cauſe intolerable Pain, and if it is put without ſide, then it is apt to make the greaſy Membrane hollow, becauſe that Membrane being ſofter than the Gut, it ſoon digeſts, ſo that there will be Danger of making a Sinus, which will hinder the Cure.

About two o'Clock the next Morning, I was call'd out of my Bed, his Family being alarm'd, becauſe he had a ſtoppage of Urine, and at that ſame time he went to Stool, and all the Apparel came away. I did not much mind the ſtoppage of Urine, becauſe of ſome Obſervations which I had formerly made, that the outward application of Turpentine in the dreſſing of large Abſceſſes in moſt parts of the Body affected the Urine, not only as to its Smell, which was much like Violets, but that it alſo augmented its Quantity; ſo by thoſe Remarks I dreſs'd the Wound with a Digeſtive made with three Ounces of Turpentine, half an Ounce of Oil of Olives, and two Yolks of Eggs, which ſucceeded ſo well, that in three Hours after this application, he urin'd very plentifully, and there was no more ſtoppage. The great Tent muſt be gradually diminiſh'd every Day, to give room to the Fleſh to puſh up.

The next Day, he had a Motion to Stool, and inſtead of Excrements, there came away near a Pound of coagulated Blood; and there were Clots of Blood in his Stools for three Days after. This Blood iſſued from the Orifices of the Hemorrhoidal Arteries that were open'd in ſlitting the Sphinctor, and by the ſmarting and uneaſineſs inſuing from the Operation, caus'd him to move here and there in his Bed, which might give Occaſion to the Tent to ſlip from the Inciſion of the Gut; the Blood flowing from thoſe Parts was carried up into the Inteſtines by their præter-natural Motion, call'd Anti-periſtaltic.

I had a Patient ſometime before this, whom I cut for a Fiſtula in Ano, that had a large Tent carried up by that Motion into the Inteſtines, and there remain'd for two Days; but knowing the Structure and Motion of their Parts, it gave me no Uneaſineſs.

The fiftteenth of the ſame Month, there appear'd a Tumour on the ſame ſide, about the bigneſs of a large Wallnut, within half an Inch off a Coxendicis, and I miſtruſted that it had a Communication with the former Abſceſs, becauſe it appear'd ſometimes ſofter than at other times; and the Quantity of Pus iſſuing from the Parts that were cut, gave me Reaſon to believe that there were more Cavities than as yet I had found out; and as I had no Mind to leave any Sinus behind, if I could help it, I laid this ſecond Tumour open, and I found that it had a Communication with what had been formerly cut; I then laid them in one; after which I found a callous Subſtance between this laſt open'd Place and the former, which I cut out. There was another Sinus that went from the laſt open'd Place, all round the other Side of the Rectum, as far as the Pereneum. I cou'd not cut all round to follow the Sinus; for then the Rectum in all Likelihood wou'd have drawn in, for all the fat Subſtance between it and the Fleſh was corrupted; and there was nothing but the Fibres of the exterior Sphinctor which held the Parts together. I firſt re-united the part of the Gut that had been cut, to the Muſcular-part next to the Side of the Rectum, which in about ſix Weeks was effected; as to the Sinus of the other Side of the Sphinctor, I ſhall ſpeak more of it when I have mention'd ſomething relating to his Eyes.

Four Hours after this laſt Operation, he cou'd diſtinguiſh moſt Objects in the Room with his left Eye, but there remain'd ſome ſmall Images flying between the Globe and the Object which he look'd at; and when he look'd at any thing with his right Eye, things appear'd as if he inſpected through a Piece of Gauze, with ſeeming Motes moving before it, but were not ſo large as at firſt. The Spitting continu'd pretty well for ſeventeen Days; the twentieth it was almoſt ſtopt; and the Inflammation of his Eyes was almoſt gone.

Some are of Opinion, that the flying Images in an inflamed Eye are cauſed from a thickning of the aqueous Humour; and that after the Inflammation is over, that

Humour becomes clear. If ſo, what can be the Reaſon of perpetual Images, which ſucceed the Generality of Inflammations of the anterior Part of the Arachnoides? Can it be any Thing but a detaching a Part of a thin Pellicle, whilſt the other ſticks to its Origin? But theſe Perſons never gave me any Reaſon for what they advanc'd. I have been conſulted by Perſons who have had Ophthalmies, where the Cornea has been ingag'd more than ordinarily, who have complain'd to me of flying Particles before their Eyes; but I attribute that to an ouzing of Matter through the Pores of the inner Surface of the Cornea, which there ſticks and wavers in that part of the aqueous Humour next to that Membrane; and what makes it more probable, is, that at this Time, the Surface of that Coat is rugged; therefore, when the Inflammation begins to abate, the Parts reſume their primitive State, and one may perceive a Pus in the Bottom of the anterior Chamber between the Cornea and the Iris. All this, while they take their riſe from ſome of the Coats, and not from a natural thickning of the aqueous Humour.

The Images of my Venereal Patient, never will be quite gone, becauſe as I have already ſaid, they are in my Opinion, Detachments of a ſmall Portion of the veſicular Part of the Arachnoides, whilſt its other Parts remain to the Whole. Before the Salivation, their Interſtices were diſtended with a Quantity of Fluid, according to the Degree of which, they were more or leſs large; ſo the diminiſhing of their Juices make them contract into a leſs Bulk; which I think may be the real Cauſe that ſeveral have been reliev'd by Mercurial Medicines, and others by Volatil Salts, and ſome by Scarifying. I ſhall relate a Caſe of this Nature, after I have given my Reaſon why the Man ſeem'd as if he look'd through a Gauze with his right Eye.

All the tranſparent Coats of the Eye, and the cellular Membranes of the vitreous Body become opake by a Solution of their Parts, ſo this Man's Caſe was from a Solution of the Continuity of the Subſtance of the Arachnoides which lies underneath its veſicular Part, occaſion'd by a Diſtention here and there like ſmall Channels, and thoſe being repleniſh'd with Matter, which perhaps diſcharg'd a Pus through ſmall Ulcers into the inner Chamber; the Source, or Spring of this being ſtopt by the Salivation, the ulcerated Parts become Cicatrices, which cauſed Opacities, according as the Matter had divided the Continuity of the Parts. There being Spaces here and there left tranſparent between the Opacities, that gave admittance to the luminary Rays to paſs into the Fund of the Eye; and I cou'd perceive a greyneſs beyond the Pupil.

If the exterior Part of the Arachnoides had been all opake, he wou'd not have been able to diſcern, even middling Objects; for all the Diſorder depends upon the Depth and Largeneſs of the Cicatrices. Now we will proceed to the Scarifying of an Eye in ſome of theſe Diſorders.

In the Beginning of *September* 1730, one *Benjamin Braſſet*, of *North-Inn*, came to me afflicted with an Ophthalmy on his left Eye; when I examin'd it, I perceiv'd a Cloudineſs, which took its riſe almoſt from the Center of the Arachnoides, of which it cover'd one Third; it appear'd of a pale ſtraw-colour'd Hue in its Middle; and which ſeemingly paſs'd the Pupil into the outward Chamber. The other Part of the Arachnoides was cover'd by a whiter Sort of Cloudineſs, and under this laſt, the Parts appear'd to be of a glittering and golden Colour; the Pupil had a very free Motion.

I ask'd him whether he had had any Stroke on it, he told me, that unluckily ſtriking on a Stone, as he was howing Turneps, it flew up and hit his Eye; upon which I gave him but ſmall Encouragement as to the Recovery of much Sight, being afraid that the Cryſtalline was alter'd by the Loſs of its Tranſparency, which cou'd not then be perciv'd, till firſt the Cloudineſs that was on this Side of it cou'd be remov'd; in order for which, I propoſed the ſcarifying of the Eye; which ſo well ſucceeded, that in four times repeating, *viz.* twice a Week, all the Cloudineſs was intirely gone off, and in the Place where it took its riſe, there remain'd a yellowiſh glittering Cicatrice of near the bigneſs of a middling Pin's-head flatten'd. The Cloud being reduc'd to this State, we cou'd diſcern a whitiſh grey Opacity on the Cryſtalline, with a ſeeming yellowiſh Glittering on the anterior Part of the Arachnoides, which as I obſerv'd was underneath the great Circumference of the aforeſaid Cloud, at my firſt inſpecting the Eye. The firſt Scarifing made ſome Alteration in the cloudy Membrane, for its anterior Part which came into the outward Chamber, form'd at firſt a blunt Point, and gradually grew bigger as it approach'd the Arachnoides; and we cou'd perceive that each ſcarifying deminiſh'd its Subſtance till it had reduc'd it to the State already ſpoke of. After all theſe Eſſays, the Patient thought he could ſee a little better, but it was of very ſmall Uſe, becauſe he could only diſcern large Objects; and for the Recovery of any more Sight I thought it impoſſible, becauſe of the Opacity of the Cryſtalline, unleſs they cou'd have been both remov'd by a manual Operation. I ſhall finiſh this Section, by giving you an Account of my Venereal Patient's Fiſtula, with ſome other Diſorders near the Sphincter of the Rectum and the Urethræ.

I have already remark'd to you the Cure of its left Side, by ſlitting or cutting up of the Sphincter of the Rectum; and mention'd that there was a Sinus remaining, which extended along the right Side of the ſaid Sphincter, as far as the Pereneum; in which Paſſage I gave my Reaſons why the Sinus was not then laid open.

About ſix Months after his Salivation, he complain'd of a Soreneſs on the right Side of his Fundament, and when I examin'd the Part, I found a Tumour near half an Inch from the Edge of the Sphincter inclining towards the Pereneum, about the bigneſs of a large Hazel-nut, but irregular. I made an Inciſion through its Tegument, from whence there iſſued about a Spoonful of Pus. I put a Probe into the Opening, and my Finger into the Rectum, where I found the Parts were hallow about two Inches along the Gut; there was no more than the Thickneſs of the Gut between my Finger and the Probe. I told him there was no other Remedy than cutting it open, in the ſame manner as I had done on the othet Side. He made me an Anſwer, and ſaid, that if I did cut him, his Family and he muſt ſtarve, ſo I was obliged to leave the Thing imperfect.

I have cut a great many Fiſtulas in Ano, and always ſucceeded in their Cure, by the Method which I have deſcrib'd to you; and it is not ſurprizing to find Fiſtulas in Ano, which have Sinuoſities that ſometimes penetrate into the Urethræ; for I have found Tumours on the Pereneum, near the Fundament which had Pus in them, and which had a Communication by an oblique Sinous turning in the ſpungy Part of the Urethræ, between its two Membranes, and that had an Orifice near two Inches from the Glans, where the Urine came outwardly through; and which originally proceeded from a Venereal Gonorhæa, that had ulcerated ſome of the Glands which are ſeated between the two Membranes of the Urethræ, and perhaps of its ſpungy Body; the Circumſtances of which wou'd be here too tedious to relate; but I will here report the Caſe of a recent Gonorrhæa, which cauſed ſuch a ſtoppage of Urine, that I was oblig'd to make uſe of the Catheter for ſeveral Days before the Suppreſſion was gone.

A young Man about Twenty-three, came to me afflicted with a Stoppage in the Bladder; for he had made no Water for two Days; when I examin'd into the Caſe, he told me, that he contracted a Venereal

Gonorrhæa fifteen Days before, for which he had put himſelf under the Cure of a Perſon, who had given him ſeveral Mercurial Vomits, for he brought me ſome of them to ſhew me, and by their Colour I judged them to be Turpeth Mineral. There was no Heſitation upon the Matter, for there was requir'd a ſpeedy Remedy, becauſe the Pain which he felt on the Region of the Bladder and in the Urethræ, was inſupportable, whereupon I introduc'd the Catheter into the Bladder, and evacuated all the Urine therein contain'd. The next Day no Urine naturally came; and therefore I was oblig'd to uſe the Catheter again, and to repeat the uſe of it for three Days: The firſt Day I paſs'd the Catheter into the Bladder, and no Urine came away; I was ſure the Inſtrument was in the Bladder, and that there was Urine contain'd in it, becauſe of the Extenſion of its Region; then I drew the Catheter out, and blew into that Inſtrument, and there came nigh half a middling Spoonful of Pus, then anointing the Catheter, I paſs'd it a ſecond time, and no Urine came through it; I drew it out again, and blew into it as I had done before, and there came near as much Matter as at the firſt time, and no Urine follow'd it, then I continued to introduce this Inſtrument into the Parts, and there iſſued a great Quantity of Urine through the Catheter; that Evening and the next Day, the Urine came away by dribbling, and he mended every Day.

This Man's ſtoppage of Urine, in all Likelihood muſt proceed from an Ulceration of the inner Membrane of the Urethræ, which Ulcers irritating the Parts, and Nature endeavouring to expel its Enemy, a Quantity of Fluid is hurried thither, that in a ſmall Time corrupts between the Interſtices of that Membrane, and perhaps the ſpungy Part of the Urethræ may be inflamed; and ſometimes the Glands which are ſeated between the two Membranes of the Urethræ, may be alſo infected. But the greateſt Obſtruction of Urine in all Likelihood, muſt proceed from the narrow Part of the Urethræ being attack'd, becauſe we often ſee that in a great many of thoſe who have Venereal Gonorrhæas, the lower End of the Urethræ is moſt commonly fill'd with Pus, notwithſtanding that their Urine comes away pretty free. In this latter Caſe, it ſeems reaſonable to think that the upper Part of the Urethræ is ingaged, becauſe that Part is very large, compar'd to its other Part, for which Reaſon it is call'd the Baſon of the Urethræ; that Baſon is five Lines large, and an Inch long, upon which Account it is not ſubject to cloſe; becauſe the Matter has a Space to diſcharge itſelf thro', and by Degrees falls down that Canal, and then out of the End; ſo that thoſe, in my Opinion, who have that part of the Urethræ attack'd, do not ſuffer a ſtoppage of Urine.

But on the contrary, thoſe who have the Part of the Urethræ of this Side of that Baſon attack'd are very ſubject to a ſtoppage of Urine, becauſe that Part is but two Lines in Breadth, the Length of an Inch, and the ſpace from this laſt mention'd Place to the End of the Canal is three Lines large. The narrow Part of the Pipe being ingag'd, cauſed the Sides of the Canal to be ſo ſwell'd, as almoſt to touch one the other, and by Conſequence muſt hinder the Urine from coming out.

The Structure of the Parts, and what I have been ſaying, gave me ſome Room to believe, that the ſtoppage was in the narrow Paſſage of the Urethræ in my Patient; and by the introducing of the Catheter, I found a greater Reſiſtance there than in any other Part; and to confirm the Sentiment which I have already advanc'd, that the Matter moſtly lay in the Interſtices of the inner Membrane of the Urethræ, which Parts became ſpungy by the Pus dividing its Continuity, the Catheter preſſing againſt the Sides, ſqueez'd the Parts, and cauſed them to ſpew out their Contents; and by Conſequence gave an Elaſticity to thoſe relax'd Fibres which could not contract whilſt the Matter kept them diſtended.

In a recent Caſe, as this Man's was, they are ſoon cured; but I have ſeen chronical Diſorders of this Kind, ſome ſix, ſome ſeven, others eight Years ſtanding; where Salivations have been tried for their Cure, without any Succeſs. Thoſe who are afflicted are worthy of Compaſſion; their Urine for the Generality comes away by Dribbling, and never in a full Stream; and every now and then they have a total Suppreſſion, what Pain do they not endure? And when they come to Urine a little, they ſtrain ſo hard, that their Eyes ſeems to ſtart in their Orbits.

Theſe Diſeaſes are call'd Caruncles in the Urethræ. They generally take their riſe from a Venereal Infection, which cauſes a Solution on ſome Parts of its Continuity; and Nature filling the Parts with a Quantity of Fluid, makes a Tumour round the Ulcers, and ſo forms Caruncles: Theſe Tumours hinder the Urine from coming in a full Stream; and when they are ſwell'd by a greater Quantity of Juices, they cauſe more or leſs ſtoppage of Urine. There is always an Evacuation of Pus; which Pus iſſues from the ulcerated Parts. The only Method as I can find for the Cure of theſe troubleſome Diſeaſes, is by the Introduction of Bougies into the Part, which in length of Time wear them down. I will here report the Method which I took in the Cure of one of theſe Caſes of ſeven Years ſtanding.

The Perſon had been nnder the Care of ſeveral Practitioners of Surgery, but to no Purpoſe. A little before he came to me, he was under the Hands of an old Surgeon, who amuſed him for ſome time; and finding the Caſe difficult in his Method of Practice, for the Urine was ſtill obſtructed, and the Running continued, he adviſed him to get a freſh Clap, and he accordingly follow'd his Counſel, and got a very copious Running. This freſh Running cauſed a greater Obſtruction of Urine than he had before. I cannot conceive, how it cou'd be otherwiſe, becauſe this new Infection having irritating Points, theſe Particles enter into the old Ulcers, and cauſe a greater Excoriation of the Parts, by which Means there is a freſh Attraction of Fluids, and in Courſe, a greater ſtoppage enſues.

I began upon him, by introducing the Bougie dipt in a Mucilage of Quince-ſeed; the firſt great ſtoppage I met with, I gently preſs'd, and if the Inſtrument could not paſs it. I kept it cloſe againſt it for five or ſix Hours, or till the Perſon had an Inclination to Urine; then the Bougie was drawn out, after which it was put up again, ſo I went gradually on till it was got beyond that Caruncle; by which Method I kept repeating the Candles dipt in the aforeſaid Mucilage, till I had clear'd the Canal. If the Patient has an Inclination to Urine at Night, and that he can't get the Bougie up again, and that it has been out ſome time, then there will be ſome Difficulty to introduce the Candle, becauſe the Parts are relax'd by the Bougie preſſing againſt the Caruncles, ſo that when they find no Reſiſtance, they ſwell a little and ſtraiten the Pipe: Then the beſt Method is to paſs the Catheter, which will have Strength to go forward; and in Caſe there ſhou'd ſome Blood follow the Inſtrument, you need not be ſurprized, becauſe it is of no Conſequence; for it only comes from the exterior Surface of the Caruncles, and when the Catheter is drawn out, the Candle muſt be put up the Part; theſe Methods, in about eight Weeks time, duly follow'd, will perform the Cure.

Sometimes the Caruncles are ſo hard, that they ſeem by their touch, to be of a callous Subſtance. I met with one of them in a Perſon's Urethræ, about two Inches from the Glans, which Caruncle was about the bigneſs of a middling Pea, and fill'd two thirds of that Pipe; it was ſeated in the inferior Part, ſo that the Urine paſs'd over it through the upper Side of the Canal.

nal. I cou'd exteriorly feel it, by touching the under Part of the Penis. I did not remark any other Diſorder than the ſlowneſs of Urine cauſed by it, which was proportionable to the Largeneſs of the Urethræ in that Part; and every time he urin'd, there was ſmarting in the Pipe, cauſed by the Urine touching on the ulcerated Part of the Caruncle, and from whence iſſued a continual running of Matter. He aſk'd my Advice upon it, I aſſur'd him there was no other Way of Cure, but by the uſe of Bougies; he did not approve of my Method, ſo he addreſs'd himſelf to an able Phyſician, who put him in a Salivation, which Salivation had no other Effect, than diminiſhing in ſome Meaſure the Bulk of the Caruncle, by leſſening the Quantity of Fluid; ſo that the Tumour ſtill ſubſiſted, altho' ſomething leſs.

He thought himſelf at laſt pretty clear from the Infection; upon which he ventur'd on Matrimony, and eſpouſed a good likely young Woman, who I fear had not intire Satisfaction in her nuptial Embraces, for after five Years Marriage, ſhe never conceiv'd with Child. But before I give my Reaſon for it, we will firſt ſtate the Caſe he was in when I was ſent for to him the ſecond time, which was ſix Years after the firſt Inſpection.

The

The lower part of the Penis, for two Inches. including the Glans, was very much diſtended, and as hard as a Horn, and rather bigger than in the natural Erection of the Part. The Scrotum was vaſtly ſwell'd and hard, and there were no Teſticles to be ſeen or felt; but they appear'd to be one Continuity with the Scrotum, which latter form'd a Band or Pudding of one Inch in Breadth, and half an Inch thick round the Penis. There were alſo two Holes on the inferior and right Side of the Penis, about a Quarter of an Inch one from the other, and about two Inches from the Glans, the former Hole the Urine came through, eſpecially if the Urine preſs'd more than ordinarily againſt the Caruncle of this ſide of it. From the poſterior and ſuperior part of the Scrotum along the Peræneum, as far as the Sphincter of the Rectum; which Condition he had been in for ſome Months.

What a deplorable State was this? for his Urine generally came by dribbling, ſo that he was oblig'd to wear Clouts about the Parts to receive it, and this was not the worſt, for he ſuffer'd intollerable Pain, the Urine preſſing againſt the Caruncle, and his ſtraining to puſh it forward, cauſed the Parts to ſwell to that Degree, as I have already mention'd.

Finding all theſe Diſorders, my firſt Intention was to remove the Tenſions of the Parts; in order for which, I apply'd emollient Poultices made with white Lilly Roots, bruiſed and boiled in Water, then I added a little Milk, and thicken'd it with Crums of Wheaten-bread, and ſeath'd it on the Fire to the Conſiſtance of a Poultice; then mix'd a little Hogs-lard and ſome Oil of white Lillies; this Cataplaſm was renew'd every twelve Hours. I alſo gave him ſome mercurial Vomits to make a Revulſion, which Method was continued for 15 Days, by which Remedies the ſwelling of the Scrotum was ſomething diminiſh'd. I chang'd the Poultice, becauſe its Operation as I thought was not quick enough, ſo I apply'd Cow Dung, with Hog's-lard and Oil of Roſes, and anointed the Scrotum with the Neapolitan Ointment; thinking that the mercurial Particles might enter the Pores, and diſſolve in ſome Meaſure, the coagulated Lympha, which there ſtagnated between the Interſtices of that Membrane; but I did not find that this laſt made ſo great a Progreſs as the former Poultice, altho it had been apply'd for three Weeks; ſo I left off this latter, and apply'd the former, which was continued for ten Weeks longer, and now and then a mercurial Vomit; by theſe Methods, the ſwelling of the Scrotum about the Teſticles was quite diſperſed;

perſed; and there only remain'd a ſemicircular Tumour in the Form of a Ridge, and of the Thickneſs of a middling Finger underneath the Penis, at the Place of of the junction of the Scrotum to the exterior Membrane of the Urethræ. The other part of the ſwelling which had paſs'd over the Penis was diſperſed; and the two Holes on the Penis were healed. The Nodes upon the Perenæum ſtill remain'd.

I began now to clear the Paſſage of the Urethræ, by introducing a Bougie, this made but a ſmall Progreſs, becauſe of the largeneſs and hardneſs of the Caruncle, which bent the Candle, ſo that I was oblig'd to put up the Catheter, and preſs hard againſt it, which tore ſome of its Fibres; after that I introduc'd the Candle, to maintain what was broke of the parts; and by alternately repeating them I had got half through the Caruncle, in about ten Days time.

The Perſon living at a Diſtance from me, I had not time to attend him every Day, nor did he keep the Candle cloſe to the parts, by which means they in ſome meaſure re-united, which was as much owing to the ſemicircular Tumour forming a Band, which there ſqueez'd the Urethræ, as to this Neglect in not keeping the Bougie to it. Now I had a Mind to try whether this Tumour and the Nodes on the Pereneum cou'd be remov'd by a Salivation. For in caſe the firſt Caruncle cou'd have been paſs'd by the Methods which I took; in all Appearance, the Nodes on the Perenæum there preſs'd againſt the Urethræ, and perhaps cauſed a ſtraitneſs on that part of the Canal. It ſeems likely, becauſe if a Perſon that urines, ſhould preſs his Finger at hat time on the Perenæum, it wou'd retard the Evacuation. Theſe Circumſtances being conſider'd, the Salivation was propoſed in order to remove them,, becauſe the Eſſays with the Poultices and the mercurial Vomits had not entirely anſwer'd the Intent as I have ſhew'd you, ſo that he agreed to the Salivation; but he was firſt bathed in warm Water once a Day for nine Days, to open the Pores, and to give a fluidity to the Mercury; after which he was anointed, and the Salivation came on very well. The eleventh Day of the Spitting, he would have me ſtop it, I deſir'd him to continue it for ſome Days longer, becauſe the Tumour and the Nodes were almoſt gone; he was ſo obſtinate, that he wou'd not drink a ſufficient Quantity of Liquids to dilute the Fluids, by which he cauſed a Gangrene on the two Orifices of the ſalivary Conduits in his Mouth, for want of a freſh Supply of Moiſture to the Parts, which Gangrene was ſoon follow'd by a Mortification of his Cheeks and Tongue, of which the ſeventeenth Day he died.

After his Death, I ſollicited for Leave to open the parts, but was denied; which if it might have been granted, perhaps would have been of Service for our better Inſtructions. Now we will examine why this Perſon's Seed cou'd not be diſcharg'd as it ought to have been.

The Seed being thrown into the Baſon of the Urethræ by the Titilation in the Coition, is puſh'd forward by the accelerater Muſcles in this Manner. There are ſeveral fleſhy Fibres, that ſpring off, or go from each accelerater Muſcle, which after they have ſpread themſelves upon the Sides of the Penis, terminate at the Prepuce, ſo that in Coition, and when we urine, thoſe Fibres contract and draw the Prepuce towards the Root of the Penis, by which Means they open the Orifice of the Urethræ, whilſt the other part of thoſe Muſcles being contracted at the ſame time, puſh the Seed or the Urine, in order to expell them out of the Canal. But when there is an Obſtacle in the Urethræ, that hinders the Seed from going forward, it reverts back again into the Baſon, ſo falls out by Driblits, and perhaps when the Erection is over, which certainly can be of no Uſe in Generation; wherefore I conclude,

clude, that this Man was not fit for Procreation.

If I have been too tedious upon this Matter, and perhaps wander'd a little from my Subject, I hope it may be excuſed, eſpecially by thoſe who are not ſo well verſed in ſeveral Symptoms of theſe Diſeaſes, having done this purely for their Inſtrction. And now we will proceed to the Diſeaſes of the Cryſtalline, and examine a new Method of couching the Cataract, which was found out by Mr. *Petit*, the celebrated Author of a Letter publiſh'd at *Paris* in the Year 1729 upon that Subject.

SECT. II.

THAT learned Man, Mr. *Petit*, Doctor of Phyſick, and indefatigable Oculiſt, who by his diligent Application, has illuſtrated that Branch of Surgery ſo perfectly, that even thoſe who are afflicted with Cataracts would bear them with greater Patience till they approach his ſucceſsful Hands.

Mr. *Petit*, after the great Pains he took in the Definition of the Largeneſs of the watry Chambers of the Eye, and the Quantity of the aqueous Humour therein contain'd, as in deſcribing alſo the Breadth and the Thickneſs of the Cryſtalline, with the Dimenſion of the vitreous Body, in his aforeſaid Letter, after thoſe Deſcriptions comes to the new Method of couching, where he ſays.

When I examine the Pupil of an Eye in the natural State, I find it black, but if I find an Opacity more or leſs white, yellowiſh, or of a pearl Colour, that it deprives the Perſon more or leſs of the uſe of Light, and leaves a ſmall black Circle round the Pupil, and that the latter preſerves its vibrating Motion; that is, a Cataract of the Cryſtalline, and it is for ſuch, that I invented my new Operation. Sometimes we meet with Cataracts that are barr'd with brown or black Lines, which form divers Figures, which ſome have took for Threads of Membraneous Cataracts. I found ſuch a one in a Corps of 70 Years of Age, which ſhew'd me that thoſe were nothing but the Parts of the Cryſtalline which were not become opake. At the ſame time I remark'd that this Cataract cou'd be couch'd without being broke; whereupon I demur'd not on performing this Operation upon Madam la Quin *of 76 Years of Age, who lived in the* Ruë des Balais, *near the* Hôtel de la Force, *and was Mother to a Chamber-maid of Madam de* St. Comteſt; *ſhe had a Cataract barr'd with ſeveral Lines. which cut or divided one from the other; I couch'd it in half*

half a Minute, without making any Difficulty, juſt like that which ſhe had in her other Eye which was not barr'd. After which ſhe was ſeen working with her Needle, as if ſhe never had had any Cataracts.

From what I have ſaid concerning the Situation of the Cryſtalline, it is eaſily ſeen that it was not difficult for to imagine my new Method of couching the Cataract would ſucceed. It is requiſite to remove the Cryſtalline from before the Pupil, and to place it anteriorly in the bottom of the Eye, where it retrenches the leaſt that is poſſible of the Rays of Light, in order for which, I carry the Point of my Needle to the inferior and poſterior Part of the Cryſtalline, where I make an opening in its Capſule, *then I drew the greateſt Part of my Needle out, to have a better hold of the Cryſtalline, by puſhing the Needle into it a little above its Center, whicq gives me a greater Facility to carry it down to the Fund of the Eye, by making it paſs through the opening which I had made in its Capſule. I ſhall give ſome Memoirs, in which I ſhall relate the particular Cauſes of Cataracts and the Manual Operation, where you ſhall ſee by what Means I preſerve the anterior Part of the Cryſtalline's Capſule without tearing, for Reaſons I ſhall mention.*

I muſt own that this Author's Remarks are undeniable, becauſe of the ocular Demonſtration, which ſhew'd him that the dark Lines ſeen in the opake Cryſtalline of the aged Man's Eye, were ſpaces here and there, which were left tranſparent; and that he further alledges, that this Cataract cou'd be couch'd without being broke; for if there had not been an Unity in the Parts, it wou'd have been impoſſible to couch it; becauſe that this Cataract had only loſt its Tranſparency in ſome Places, from a Curvity of thoſe Pores, whilſt the other parts remain'd in their natural State. I mean as to his Age, becauſe Mr. *Petit* ſays, in a Memoir of his, in the Tranſactions of the *Royal Academy of Sciences*, for the Year 1726, that the Cryſtalline becomes harder as they advance in Years; and to prove his Aſſertion, he brought at that ſame time, and ſhew'd to the Aſſembly, the Cryſtallines of all Ages*. Thoſe Conſiderations gave him Encouragement to couch the Woman's Eye, in which he ſucceeded in half a Minute of Time. We are very much oblig'd to this Gentleman, for ſo great an Improvement in the Operation of the Cataract; and no Author ever mention'd it before himſelf. But there is a very material Point to be conſider'd, which is to know thoſe Cataracts that are couchable by this Method; becauſe daily

Experience ſhews us that all Cataracts are not couchable by this new Way, no more than by the common Method. For Proof of which, I will here relate two Caſes of Opacities of the Cryſtalline that cou'd not ſupport the Needle, notwithſtanding the Opinions of ſeveral Oculiſts in *London*, who thought they were fit to couch.

The firſt was a Gentlewoman in *Hammerſmith* of Eighty, who had been afflicted with frequent Returns of Ophthalmies for ſeveral Years; the Pupils preſerv'd their vibrating Movements. The Cryſtalline of her right Eye was become opake by a yellowiſh ſmooth Cataract, which had been gradually coming on for ten Years, and at laſt ſhe cou'd only perceive the Shades of large Objects; alſo the Cryſtalline of the left Eye was attack'd with a ſmooth Opacity, ſomething inclining to a Straw-colour'd Hue; with this latter Eye ſhe cou'd diſtinguiſh Objects indifferently. This Opacity had a darker Look than the former, becauſe the tranſparent Pores of the Cryſtalline were not ſo obſtructed as in the other; and by Conſequence admitted a greater Quantity of Rays through them.

The Generality of People, when afflicted, ſeek out for the beſt Advice they think may be of Service to them, ſo ſhe had the Sentiments of ſeveral Oculiſts, who told her they were a good Sort of Cataracts; and that that in the right Eye was fit to couch; and they further alledg'd, that ſhe had a very good Eye for the Operation. I own the Structure of the Globe of the Eye was very advantagious for an Operation of that Sort, becauſe it was a fine full Eye; but the main Matter was to conſider whether the Opacity wou'd ſupport the Needle.

I never ſaw any of theſe yellowiſh ſmooth Opacities of the Cryſtalline that ever cou'd be couch'd, becauſe the Needle goes through them; but I believe there might be a Method found out to extract them by Inciſions, which I ſhall have Occaſion to ſpeak of after the needling of the aforeſaid Perſon's Cataracts.

The Tenth of *September* 1731, I began with the Gentlewoman's Eye, into which I made the Punchion, about two Lines from the Edge of the Cornea toward the Temple, with a pretty large Needle, and flattiſh at its Point, then puſh'd it towards the poſterior and inferior Part of the Cryſtalline, at which Place I made an Inciſion through its Capſule, then paſs'd it ſomething beyond its Center, as near as I cou'd gueſs by the Needle, for it is impoſſible to ſee the Point through the opake Body: When it was at this Place, I mov'd the Inſtrument, and found no Reſiſtance, then

I gently approach'd the Point of the Needle towards the anterior part of the Capſule, and the nigher it came to it, the more diſtinctly one might ſee it; then we cou'd perceive that it had paſt two Thirds of the Pupil, which is the right Proportion to couch a Cataract well.

Being intirely certain of the Nature of the Cataract by the Needle going through, and the impoſſibility of couching it; I mov'd the Needle here and there, in order to make a greater Solution in the Parts, and to leave the reſt to Nature.

When I cou'd ſo diſtinctly ſee the Point of the Needle, it was a certain Sign that the anterior part of the Arachnoides was was very tranſparent; and on the other Hand, if it had not been whole there, the diſſolv'd Cryſtalline would have fell into the inner Chamber. Then I drew the Needle out, and dreſs'd the Eye, as in the ordinary Way; and at the end of eight Days, I inſpected the Pupil, beyond which one might perceive whitiſh floating Pellicles one paſſing before the other at the leaſt Motion of the Eye. Theſe Pellicles muſt have ſwam in an aqueous Humour, or elſe they cou'd not have roſe and fell as they did. At three Months after the Operation, theſe Pellicles contracted into a cloſer Body, by which Means the upper Part of the Pupil was uncover'd one third

Part, ſo that ſhe cou'd diſtinguiſh ſeveral Objects, eſpecially when there was an Inflammation on the Eye.

Now we are to conſider what caus'd this Cataract to become leſs in Bulk than it was before its Needling? My Opinion is, that this Cataract was a Diſſolution here and there of the Cryſtalline, which Solution form'd ſmall Cells, in which might be contain'd a liquid Subſtance, not unlike to a yellowiſh ſtagnated Serum, ſuch as we often ſee in Bliſters of the Skin. The Needle breaking theſe Cells, they evacuate their Contents, by which Means the little fibrous Membranes that compoſed the Cells became cloſer together, which in Courſe made it precipitate ſomething down; and by the ſame Cauſe, made the ſmall Fibres become whiter by the Curvity of their Parts, for Want of a Diſtention, as they had before the Needling.

The ſecond ſoft Cataract that I needled, was in the Eye of a Man of Seventy, who liv'd at *White-chapel.* The vibrating Movements of the Pupils were very free. He had an Opacity in each Cryſtalline, which were about ſix Years Growth; he could only perceive the Shades of large Objects. That in the right Eye, was of a dirtyiſh or muddy Hue, ſomething inclining to a yellowiſh Colour and ſmooth.

The anterior part of the Cryſtalline of the left Eye was become curdly, and of a Pearl-colour: Theſe curdly Parts were larger ſome than others, and there was no great Unity amongſt themſelves, which I was ſoon convinced of when the Needle was introduced into the Cryſtalline, for the larger part went down by the Inſtrument preſſing upon them, at which Time he cou'd ſee a greater Light, but there remain'd a whitiſh Opacity in the Part, which the Needle went through, without being able to ſuppreſs it; and there being nothing more to be done by this Method, I drew the Needle out and dreſs'd the Eye, and left him under the Care of a Surgeon, and ſaw no more of the Patient till four Months after, at which time I examin'd the Eye, where I found that the Opacity cover'd the whole Pupil, and the Cataract appear'd to be of a cloſer Texture than before the needling, becauſe it was a great deal whiter.

But to paſs by nothing ſlightly, we muſt try to give a rational Account, why this Man's Cataract did not in ſome Meaſure ſink down, or diminiſh in its whole Texture as the Gentlewoman's did. His Cryſtalline was only curv'd by Places, or at leaſt that Part which appear'd to us through the Pupil; and its other Part was in a ſmall Degree curved, becauſe of the whiteneſs, which in all Likelihood kept its ſame Form, but was not ſo ſolid as in the natural State, for if it had been in its right Texture, it would have made ſome Reſiſtance to the Needle, of which I ſhould have been ſenſible, as I was in needling the Man's Eye of *Hammerſmith*, and a Woman in *London*, of whom I ſpoke in my *Treatiſe of the Diſeaſes of the Horney-coat and Cataract of the Eye*, page, 178 †, and page 199 *. But here the contrary happen'd, becauſe the Needle went through without any ſenſible feeling. The Needle only enter'd into the Center of the Cryſtalline, or at moſt the Proportion of the Circumference of the Pupil, at which Place it made a Solution, by breaking its Texture, whilſt the great Circumference of the Cryſtalline remain'd untouch'd by the Needle, by that Means it kept its Form; and entring of the aqueous Humour between the Cryſtalline and its Capſule, might give Occaſion to puſh the poſterior Part of the Cryſtalline forward, and ſo cauſe the Parts of the Cataract that were torn by the Needle to keep cloſer together, towards the anterior part of the Arachnoides.

And to confirm this, that there might be an aqueous Humour between the Cryſtalline and its Capſule, you have only to recollect, that I ſaid, that eight Days after I had needled the Gentlewoman's Eye, one might perceive a whitiſh ſort of floating Pellicles, one paſſing before the other, and in Courſe they muſt have ſwam in a liquid Subſtance, or elſe they could not riſe and fall as they did; what further corroborates this Sentiment, is, if there had not been an aqueous Humour to repleniſh the Extent of that Bag, the anterior Part of the Capſule muſt have wrinkled, and ſo in Courſe become opake, which Opacity muſt of Conſequence have hinder'd our ſeeing through it.

From what I have been ſaying upon the ſoft Cataracts, it is very evident, they cannot ſupport the Needle, and by Conſequence won't bear couching; and on the other Hand, the anterior Part of the Arachnoides is moſt commonly ſtronger, than in ſeveral other Opacities of the Cryſtalline. And for Proof of that, this Capſule is a great deal thicker in one Caſe than another, any Body may make the Trial by the Diſſections of Eyes; by which they will ſoon be convinc'd of its Truth.

The greateſt Difficulty, which that great Oculiſt Mr. *Antoine* found in the couching ſeveral Cataracts, was, when the anterior Part of the Cryſtalline's Capſule could not be torn; for this Capſule keeps the Cataract incloſed, as if it was ſhut up in a tranſparent Bag. And in his *Treatiſe of the Diſeaſes of the Eye*, he gives us a particular Account of this Bag growing very large, and a great Deal thicker than in its Natural State, *Chapter* 18, *page* 228 †, in which Place, he ſpeaks of the Cryſtalline's Protuberance, and at the latter End of the ſame Chapter, he gives us a particular Account of it, by the Diſſection of an Eye, after he had tried to couch a diſeaſed Cryſtalline of the ſame Sort, without being able to ſuppreſs it, becauſe of the Toughneſs of its Capſule; and theſe are his Words upon the Examination of that Eye.

" Some Time after, by chance I met
" with a Peaſant's Dog, that had ſuch a
" Diſeaſe in one of his Eyes; deſiring more
" and more to diſcover the Diſpoſition of
" the Cryſtalline in this State; I had the
" Dog ſhut up and kill'd, and I ana-
" tomically examin'd the Eye. I found
" the Cryſtalline near as big again as that
" of his other Eye, having an unequal
" Eminence or Swelling on its Fore-part.

" Its Membrane was thicker, ſtronger, and " more poliſh'd than ordinary, and was " ſtrongly attach'd to the vitreous Body; " having cut this Membrane, I ſaw the " thick Humour, which had ſwell'd the " Chryſtalline, it was white, and had a " middling Solidity, almoſt like Curd that " is not broke, and was ſomething viſ- " cous. This Subſtance made but one " Body with the Cryſtalline, which like- " wiſe was white, ſomewhat tranſparent, " and more ſolid than naturally ought to " be; and the other Parts of the Eye were " in their natural State, excepting the " Vvea, whereof the Pupil was very much " dilated, and unequally round, againſt " which, the Cryſtalline was ſtrongly " preſs'd.

Now we will try to ſurmount all thoſe Difficulties which have ſo perplex'd our modern Oculiſts, and to reſtore Sight to thoſe, who by them were thought incurable; and to find a new Method of removing the opake Cryſtalline from before the Pupil, and forever hinder it, to be in the Way of riſing it to obſtruct the Light.

You have already ſeen the Tranſactions of the *Royal Academy of Sciences* upon Inciſions made through the Horney-coat of the Eye, to extract Cataracts out of

the

the anterior Chamber, which I ſet down in this Appendix, that you might ſee the Encouragement which that illuſtrious Aſſembly gave to make Inciſions in the Cornea, when Occaſion requires.

Monſieur *Mery* ſays, That one might attempt this Operation when the Glaucoma is behind the Iris, without being adherent to it; and even when its Diameter is larger than that of the Pupil, becauſe the Hole of the Iris eaſily inlarges.

This Method of extracting the Cataract which I am going to propoſe, is ſomething more difficult, than to extract any thing out of the anterior Chamber; becauſe when the Inciſion is made in the Cornea, in order to evacuate any thing out of that Chamber, all the aqueous Humour flows out, and the Body which we are to draw out falls directly on the Inciſion, and you even ſee it, and conſequently it is very eaſily extracted. But on the contrary, in my Method the aqueous Humour muſt be preſerv'd, or at leaſt till the Cataract is drawn out; becauſe you'd cou'd not be able to ſee how to paſs the Inſtrument through the Pupil, and then to make an Inciſion into the anterior and inferior part of the Arachnoides; for in Caſe the aqueous Humour flows out, the Cornea becomes opake.

The Inſtruments for this Operation are theſe, a ſmall Knife about an Inch long, and two Lines broad, ſomething concave on the upper part, and convex on the under, becauſe it muſt be in a Degree proportionable to the Roundneſs of the Pupil: This Inſtrument muſt have an Edge of each Side, about a Line and half in Length, which ought to grow gradually taper to the End of its Point; there muſt be a ſilver Canula to caſe this Inſtrument, with a flat Handle to keep it firm: All the edged Part of the Inſtrument muſt paſs the End of the Canula. There muſt alſo be another Inſtrument fitted to the Canula, which muſt have a Hook at its End; the End of the Bow of the Hook muſt paſs the End of the Tube about two Lines; the Point of it ought to be about three Quarters of a Line from the End of the Canal.

Theſe Inſtruments being in Order, the Patient muſt be placed in a low Chair, the Back of which muſt be no higher than to reach his Shoulders; the upper part of the Back of the Chair muſt have a Lap that riſes and falls as the Operator thinks fit, and moderately ſtuffed with Hair, rather ſoft than hard.

The Patient being ſeated to a convenient Light, with his Head ſomething leaning on the Lap of the Chair, with an Aſſiſtant behind to hold the Head firm. Then the Operator takes a Speculum Oculi, to keep the Eye ſteady till the Puncture is made; the Eye being engag'd in this Manner, you take the Inciſion Inſtrument incloſed in its Canula, and make the Punchion through the Cornea, ſomething below the Level of the inferior Part of the Pupil, then take off the Speculum Oculi, becauſe it will preſs too hard againſt the Globe of the Eye, and occaſion the aqueous Humour to run out. When the Point of the Inſtrument is near the lower Edge of the Pupil, you draw the Handle of the Steel Inſtrument about two Lines, by which Means the Point is ſunk into the Canula; this is done, in order that the Point ſhou'd not prick the Edge of the Pupil, and the anterior part of the Arachnoides; when you have got it there, gently lift up the Handle of the Inſtrument, by which Means the Edge of the Pupil is preſs'd down; it muſt not be above half a Line, for it eaſily gives Way; then advance the Point of the Inſtrument, and make an Inciſion through that part of the Arachnoides: And in Caſe there is a liquid Subſtance incloſed, it will immediately iſſue into the aqueous Humour of the Chambers; and from thence fall out through the Inciſion with that Humour, which Nature ſoon repairs; but if you find no Matter, then make a little larger opening through the Arachnoides, by inclining to the Right and Left with the Edges of the Inſtrument, which will facilitate the Extraction of the Cataract; after that draw the Steel Inſtrument out of the Pipe, and introduce the Hook; there muſt be Care took between extracting one and the introducing the other, to hinder as much as is poſſible the aqueous Humour from flowing out. When the Hook is puſh'd as far as the Cataract, then try to engage it in the Bent of that Inſtrument, and if there is any Unity in that Body, you will ſoon draw it to the Edges of the Inciſion of the Cornea: The back part of the Hook muſt have a Channel, into which you paſs the Point of the cutting Inſtrument, and dilate the Orifice of the Cornea to the Proportion of the Cataract, by that Means you will be able to dtaw it out with Eaſe. It will be impoſſible to draw it through the Canula, becauſe that Body will break, and the Pieces will not be ſo eaſily hook'd as thoſe that are of a ſofter Nature, for which Reaſon you muſt draw the Hook and its Tube out together.

If the Cataract ſhou'd prove one part liquid, and the other ſolid, which one will eaſily find by the Quantity of Matter flowing into the aqueous Humour; for if there is but a ſmall Quantity, we judge from thence, there is a ſolid Body remaining: Then you muſt extract it with the Hook, as in the Manner already mention'd; and in Caſe the Opacity be of a ſoft Nature, *viz.* neither liquid nor ſolid, or ſuch a Cataract as that of the Gentlewoman's already ſpoke of before; then we muſt try to draw it through the Canula by Pieces, and keep the Tube in the Eye till you think it is all evacuated, or at leaſt the greateſt part; for if there ſhould remain a ſmall Portion, in all Likelihood, it will precipitate to the bottom of the Capſule, and leave the middle and ſuperior Párt clear, ſo that the Patient will be able to ſee. When the Operation is over, dreſs the Eye as in the Manner deſcrib'd for the Inciſions of the Cornea.

This Method which I have deſcrib'd to extract the Cataract, preſerves the anterior part of the Arachnoides, or at leaſt that part of it which is oppoſite to the Pupil, which Coat in all Likelihood might be of great Service when tranſparent, becauſe of its fine cloſe Texture and diaphanous Parts, for which Reaſon none of the Humours of the Eye are ſo capable of collecting the Quantity of Rays as that Membrane: Hence you ſee, that Mr. *Petit's* preſerving of it, is very much to the Advantage of the Patient.

Some may ask me, whether the Capſule is repleniſh'd with an aqueous Humour, or that the vitreous Body fills the Part after the Evacuation of the Cataract. I anſwer, that it does not ſignifie which, becauſe they equally make the ſame Refraction, for Proof of which, I appeal to the Experiment tried, that Mr. *de la Hire*, junior, ſets down in the Memoirs of the *Royal Academy of Sciences*, for the Year 1707, and his Words are theſe.

" We took the vitreous Humour of an
" Ox's Eye, and put it into a ſpherical
" Vial, which had about an Inch in Diameter, and having fill'd the remainder
" of that Vial with Water, we did not
" find that there was any Difference in
" the Refraction between the Water and
" the vitreous Humour; for altho' this
" Humour was heavier than the Water,
" we ſaw nevertheleſs through thoſe two
" Liquors, the natural Figures of Objects on
" every Side one look'd.

SECT.

SECT. III.

THERE is a particular Diſeaſe of the Eye, which ſome Authors have not took Notice of, ſo as to diſtinguiſh it from a Diſeaſe that appears not unlike it upon inſpecting the Eye. The afflicted Perſons complain, that Objects appear to them bigger than in their natural Structure. The Pupil is moderately dilated, with no apparent Opacity beyond it. Moſt commonly both Eyes are attack'd at the ſame Time.

This Diſeaſe is cauſed by the Dilatation of the anterior Part of the Arachnoides; the ſpace between that Membrane and the Chryſtalline is repleniſh'd with a ſlimy Sort of Subſtance, which might not be very clear: This Subſtance there makes a Sort of Protuberance on the Cryſtalline, which is greater or leſs, according to its Quantity and Diſtention of the Capſule, ſo cauſes that Part to be convex, which is the Reaſon that makes Objects appear larger than in their natural Proportion.

It is an eaſy Matter to know this Diſeaſe from an imperfect Obſtruction of the optic Nerve, notwithſtanding both Caſes have a Dilatation of the Pupil, in the latter, no Glaſs will help the Sight, and in the former, they are aſſiſted with a greater Quantity of luminary Rays, by the Help of a proper Glaſs.

When the anterior Part of the Cryſtalline's Capſule dilates here and there, *viz.* one Part even, and the other ſtands out, then an Object appears double to them, ſometimes treble, according to the Uneveneſs of the exterior Surface of that Membrane. But very often the Protuberance of the Cryſtalline is accompany'd with a perfect *Gutta Serena*; and then the afflicted has not the leaſt Senſation of Light, and their Pupils are very much dilated, and there appears beyond it a darkiſh ſmooth Opacity, and ſomething glittering, which ſome call black Cataracts. I ſaw a Gentleman of the Law ſometime ago, who had ſuch Diſeaſes in his Eyes; and a famous Vender of Eye Water, at Half a Guinea a Bottle, told him they were Cataracts, and that he muſt uſe his infallible Water. The Gentleman being deſirous of Sight, bought four of the Bottles, which he made Uſe of without any Succeſs.

I have had Occaſion ſeveral Times to mention the Length of a Line, but did not explain what a Line was; it is the Twelfth Part of an Inch.

On HORSES EYES.

HORSES are ſuch uſeful Animals to Humankind, and the Knowledge of their Eyes is of ſo great Importance to our Safety, that it ought to be our Endeavour to prevent thoſe Accidents which might enſue from the Diſorders of their Eyes; which are Membranes flying or floating in the aqueous Humour, that there form different Images before their Eyes, and which make them ſtart, and ſometimes throw their Rider; the Particulars whereof I ſhall relate as we proceed.

It ſeems firſt neceſſary to give you an Account of ſome of the Diſeaſes of the exterior part of the Globe of their Eyes, and ſo forward in as regular a Method as I can, to thoſe of its interior Parts.

The Cornea in its natural State, is a tranſparent Coat ſeated at the anterior part of the Ball of the Eye. This Coat is ſometimes diſeaſed by white Specks of different Forms and Bigneſs, and which often extend all over that Tunicle; then it makes a bluiſh Opacity, which are moſt commonly of this Colour at the firſt Invaſion of the Diſtemper. This Opacity is then eaſily cur'd, by firſt bleeding in the angular Vein, and waſhing the Eye five or ſix times a Day with a Collyrium made with a Pint of Plantain Water, and thirty Grains of Salt Prunella diſſolved in it and apply'd warm.

But I muſt acquaint you, that Opacities of this Coat may happen from ſeveral Cauſes, *viz.* by a Stroke or Blow; or by a pointed Inſtrument, ſuch as Thorns; and ſometimes from a Piece of Flint or any other ſtrange Body flying in and wounding the Parts, which often ſtick, and indanger their Sight: Sometimes it is from an inward Diſorder, occaſion'd by a too great Plenitude of the Veſſels, whieh there hinders the free Circulation of the Blood, and cauſes the Juices to ſtagnate between the Interſtices of the Cornea; by which Means it cauſes a Curvity of its Pores, which is a main Cauſe of Opacities of this Coat.

If the Diſorder ſhou'd happen by any thing ſticking in the Cornea, which you will eaſily perceive by inſpecting the Eye, then you muſt firſt remove it, by throwing the Horſe, and keep his Head ſteady; then take a thinniſh and ſmooth Piece of Whale-bone, of about ſix Inches long, and a quarter of an Inch in Breadth; bend it in the middle, and form an ovaliſh Ring proportionable to fit the Eye, by tying the Sides together with ſome Thread;

the part from whence the Tye begins to the two Ends ſerve as a Handle. This being done, you open the Lids, and place this Inſtrument on the Ball of the Eye; and the Eye being ſo ingag'd and kept ſteady by holding the Handle firm in one Hand, you with the other take a Quill cut in the Form of a Tooth-picker, with which you gently work the Piece of Flint, &c. out, by paſſing the blunt Point underneath, and lifting it up, *which will readily come out*. I have often practiced this Method with Succeſs on human Eyes. This Operation being done, you touch the wounded Part with the End of a Feather dipt in the Oil of Eggs, once a Day for a Fortnight; apply Compreſſes imbibed in the aforeſaid Collyrium five or ſix times a Day, with a proper Bandage to keep them on; this laſt muſt be continued for eight Days.

There is no Neceſſity of flinging the Horſe down when you put the Oil on the Eye; you need only paſs the Feather dipt between the Lids and the Globe of the Eye, becauſe the Motion of the former will ſoon defuſe it all over that Coat.

This Method of dreſſing the Eye, may be made uſe of in all recent Opacities of the Cornea; but if the Specks are of long ſtanding, then you make uſe of Verdigreaſe in very fine Powder, incorporated in freſh Butter, but take Care not to put too much of the Powder, for fear of excoriating too much, and ſo indanger an Inflammation; which you will perceive by a too great Quantity of Tears flowing down; You take about the bigneſs of a middling Pea of this Mixture, and put it between the Lids; then make a circular Friction on the Lids; this may be done once a Day for a Fortnight, and the Eye muſt be waſh'd with Brandy, one part in five of Water warm, two or three times a Day.

If you find that this Medicine do not make any Alteration in the Speck, it is to be fear'd that the Opacity penetrates deep; if ſo, it is needleſs to continue the Application; For I have found by the Diſſection of Eyes, that the Cornea have been opake all through its Subſtance; then it is the Cicatrices of Abſceſſes, which Abſceſſes had mined here and there the Continuity of that Coat; then the Parts heal'd by a Scar in the Form of white Seams.

Next to the Cornea, there is a Membrane call'd the Iris; which has various Colours that we obſerve in different Horſes; and from thence comes its Name the Iris. It is a ſort of Zone, or an ovaliſh Ring, pretty large; the middle, which is empty, is the Pupil, through which the Rays enter into the Eye. When the Eye is expoſed to a great Light, the Pupil ſenſibly contracts and forms into a horizontal oblong Figure, which Structure is natural to that part of their Eye, then the Iris enlargens and extends; but in the Shade the Pupil dilates, or which is the ſame thing, the Iris contracts; to a middling Light, the opening of the Pupil, or the extenſion of the Iris is alſo middling. Theſe Movements are not voluntary, but purely natural, and from thence the Eye of itſelf fits and proportions to the Degree of Light which it ought to receive; it opens a great deal when the Light is weak, for to receive the greater Quantity of Rays; it opens but a little when it is ſtrong, for fear of receiving too much, and of being hurt.

Theſe Animals do not require ſo great a Light as Humankind; becauſe the inner Surface of their Choroïdes towards its Fund, is compoſed of a fine ſplendid lightiſh blue Colour, which anſwers the Proportion of the Pupil. This gives me ſome Inclination to think that the Rarefaction cauſed in this irradiateing Membrane, is not unlike a Glow Worm, by this Means they are able to ſee with leſs Light, and even diſcern Things that appear dark to us.

Upon thoſe Conſiderations it wou'd be very proper when any Perſon is out at Night upon a Horſe, and does not well know the Way, to let the Horſe have his

Head and not check him; by this Means they might avoid falling into a Ditch or Precipice, *&c.*

It is the Reflexion of the aforeſaid ſplendid Membrane beyond the Retina which makes one imagin, that when we look at a Horſe's Eye when ſound, that the Cryſtalline is opake.

Horſes are not ſo ſubject to Diſeaſes of the exterior part of the Iris, as to thoſe of the inner Membrane that lines it, which is call'd the Vvea; for this latter is very apt to dilate and paſs the Edges of the Pupil, eſpecially its ſuperior Border, where it ſometimes forms ſmall Eminences, not unlike the Pearl-work upon Lace, but differs in Blackneſs. I have likewiſe found red, fleſhy Excreſcences, about the bigneſs of a midling Pin's-head on the Edge of the Pupil; alſo the ſuperior Part of the Fibres of the Vvea detaches and appears like a dark Fringe hanging before the Cryſtalline.

I never ſaw the firſt of theſe Caſes attended with any further Diſorder than the Diſtention of the Part itſelf; and the Pupil obſerv'd its vibrating Motion: The ſecond is moſt commonly follow'd by a Mollification of the vitreous Humour; and the third is generally ſucceeded by a Diſſolution of the ſaid Hnmour. You may eaſily know one from the other, by putting your Finger or Thumb on the upper Lid, and gently preſſing the Globe of the Eye; as the Degree of Softneſs you there find is, ſo is the Diſorder more or leſs in the vitreous Body. I ſhall give an ampler Account of the Diſeaſes of the vitreous Humour, when I come to treat upon that Part in particular; but it will be more out of Curioſity to let you know the Nature of the Parts diſeaſed, than that there is any Remedy for them. So we ought to try in the beginning to ſtop their Progreſs, which you may know by the following Symptoms.

There is a continual running of Tears, with a ſlight Dimneſs all over the Cornea, without their being able to bear a great Light, attended with a ſoftneſs on the Ball of the Eye; generally both Eyes are afflicted, but commonly one more than the other.

As to the Cure, I believe it might be perform'd by repeated Bleedings, and to make a Seton on each ſide of the Neck, about an Inch below the collateral Apophyſis's of the upper Vertebræ of the ſaid Neck. The Eyes may be waſh'd with a Lotion, made with a Pint of Pimpernal-water, having a quarter of an Ounce of diaphoretical Antimony mix'd with it, and apply'd warm ſeveral times a Day; and give the Horſe inwardly every Day for the ſpace of a Month, an Ounce of this ſweating Antimony, mingled in half a Pint of Angelica, or Milk-water, and take Care to keep him warm whilſt he takes this Medicine.

The next Coat of the Eye, is the anterior Part of the Cryſtalline's Capſule; this Part is often afflicted with Diſorders; for in this Membrane is the original Cauſe of that Diſeaſe, call'd by the Farriers, Moon-blind. This Diſtemper is an Inflammation and Ulceration of that Coat, which Ulcers had cauſed a dividing of the exterior Surface of this Tunicle, by forming a Pellicle or Skin, and that Skin ſwims in the aqueous Humour. This Diſeaſe is more or leſs, according to the Degree of Solution of the Continuity of the Part; for when a great part of the Membrane is divided in the form of a Slough, it looks of a yellowiſh Hue, which ſometimes floats in the aqueous Humour; then it ſpends its Contents, and contracts into a ſmaller Compaſs, and turns white. This Diſorder is moſt commonly periodical, for it returns about the new or full of the Moon: Unleſs its Progreſs can be ſtopt, it is follow'd by an Opacity of the Cryſtalline. But when there is a ſlight Ulceration of this Coat, which only ſeparates a thin Portion of this Membrane, whilſt its other part remains attack'd, ſo that part of it ſwims in the aqueous Humour, it occaſions variety of Figures flying before their Eyes; and is very likely to be the Cauſe of their ſtarting; and perhaps the fringey Part of the Vvea hanging before the Cryſtalline already ſpoken of might occaſion the ſame fearfulneſs. I do aſſure you, that I have found by the Diſſection of their Eyes, here and there a portion of the anterior Part of the Arachnoides detach'd whilſt its other Part remain'd attach'd.

We may attempt the Cure of theſe Moon blind Horſes, at the firſt Invaſion of the Diſeaſe by Revulſions; ſuch as were deſcrib'd in the recent Diſorders of the Vvea, and not to put ſharp Waters and Powders into their Eyes, which only ſerve to irritate and draw a greater Flux of Humours to the Parts, by which the Eye is indanger'd of being loſt.

Under the anterior Part of the Arachnoides the Cryſtalline is plac'd. This Body is often attack'd with different Diſeaſes; ſometimes the exterior Pellicle, or as ſome call it the Cryſtalloides, is opake by Places, which is eaſily perceiv'd by thoſe who have any Knowledge of the Eye; and ſometimes the Cryſtalline is opake all over, but always in that Caſe I have found there has been a Diſſolution of the vitreous Humour, which Diſtemper we will paſs to.

The Diſeaſes of the vitreous Body, is the moſt common of any Diſorder that happens to Horſes Eyes.

This Diſtemper begins by an Inflammation of the Choroides, which communicates to the cellular part of the vitreous Humour, and to the Cryſtalline's Capſule. There are various Kinds of theſe Diſorders.

The firſt is a whitiſh Matter, incloſed between the Cryſtalline and its Capſule, which ſo relaxes the Capſule, that its anterior Part preſſes againſt the Edges of the Pupil, by which it ſlackens the Motion of the Iris; and when the Diſorder is greater, it cauſes an intire Diſſolution of the vitreous Body; which often appears as if all the cellular Parts of this Body were preſs'd together towards the ciliar Band, and there forms a ſtrong Membrane as thick as the Cornea, which ſometimes is opake by Places, at other times it is white all over. In this Caſe, the watry part which fills the Place of the vitreous Humour is moſt commonly yellowiſh; the Retina is generally ſtronger than in its natural State. The dark part of the Choroides is changed into a rediſh yellow Hue, and the ſplendid part of that Coat is of a browniſh Yellow, with varicous Veſſels diſperſed all over the Surface of the Choroides.

I have often found accompanying theſe Caſes an opake Cryſtalline puſh'd, with the anterior part of its Capſule through the Pupil into the outward Chamber, and ſtuck to the inner Surface of the Cornea; there was alſo a Coheſion of the Cryſtalloides to the anterior part of the Arachnoides. Once I found all the anterior part of the Cryſtalline's Capſule detach'd from its poſterior Blade, and adher'd all round the great Circumference of the Iris.

It ſeems proper to explain the Word Cryſtalloides, becauſe that Term is not much known to a great many Practitioners in Surgery. It is the Cryſtalline's proper Membrane, for its common Membrane is call'd the Arachnoides. The Cryſtalloides is not ſo apparent on a tranſparent Cryſtalline, as it is upon an opake one, becauſe upon the intire Unity of its Parts depends the whole Tranſparency of the Body; ſo when its Pores are oblique, the Continuity of the Part eaſily divides one from another, which then makes the Diviſion very perceptible to our Eyes. I never found this Membrane cover'd the whole Body of the Cryſtalline, there has been a ſpace of about three Lines in Diameter at its poſterior Part, which was not veſted by it. This Membrane is thicker on the anterior Part, than upon its Sides, and gradually grows thinner as it terminates backward to the Place juſt ſpoke of.

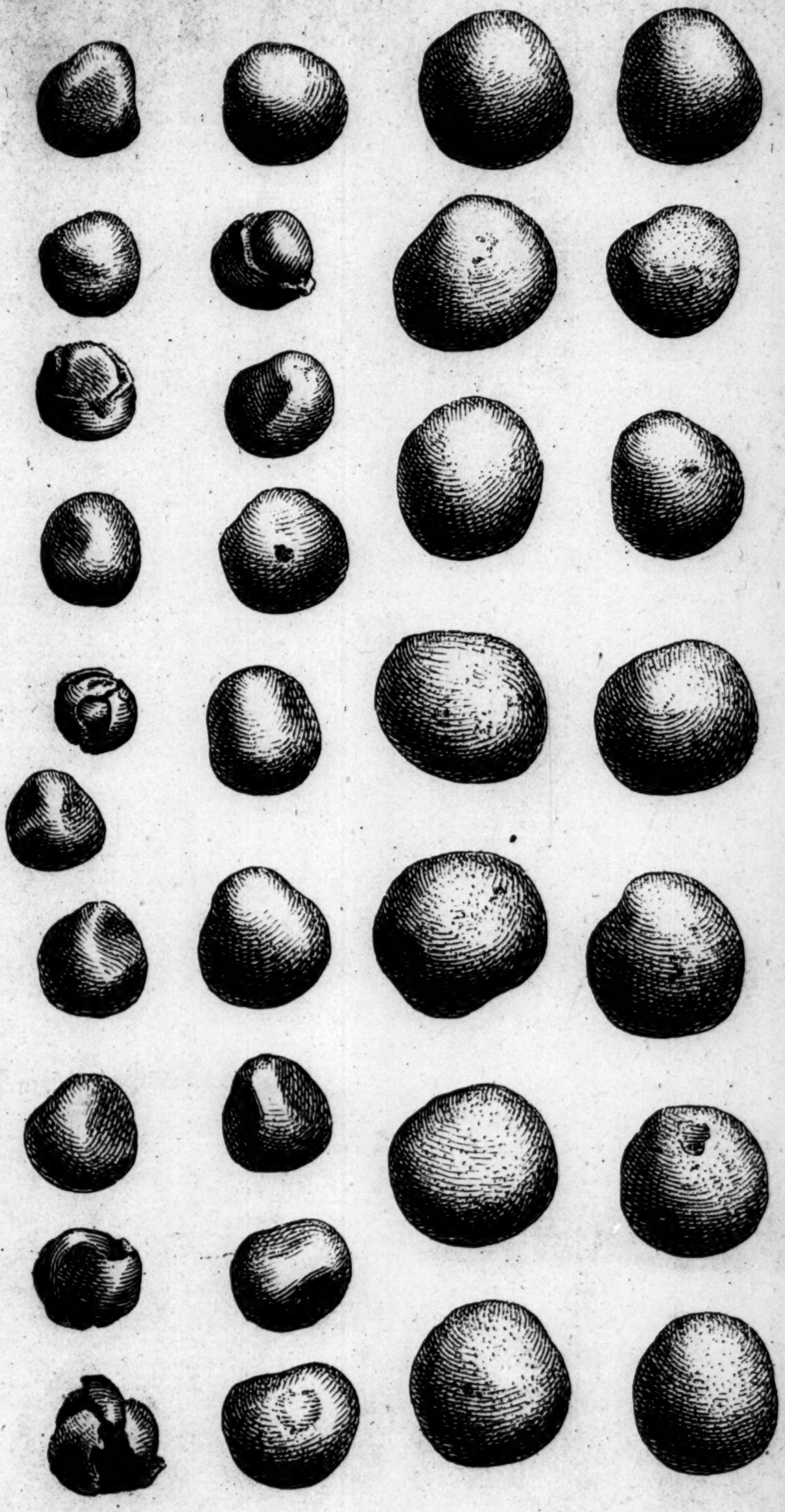
The admirable Structure of the Horſes Eyes, when ſound, induce us to be conducted by them in the Dark, and to be upon our Guard when they are affected; with the Remedies for their Cure, is all which I have to communicate at preſent.

FINIS.

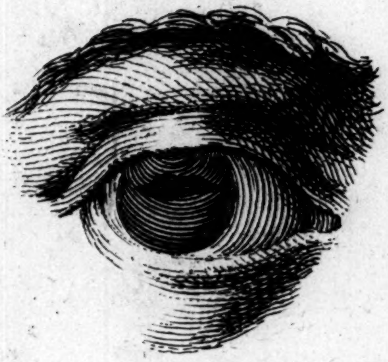
MVSEVM
BRITAN
NICVM

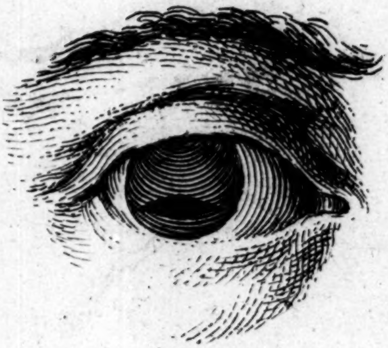
Appen:

TAB. I.



Appen: TAB. III.





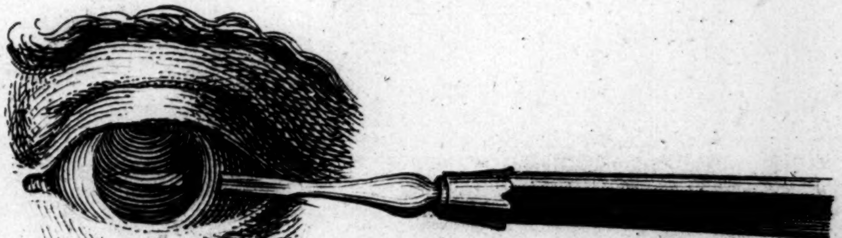


Plate II missing
24/7/37. RM

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